SHIPOWNERS AND FABRICATED SHIPS. See p. 432.
AN INTERESTING COLLISION REPAIR (Illus.). See p. 436.

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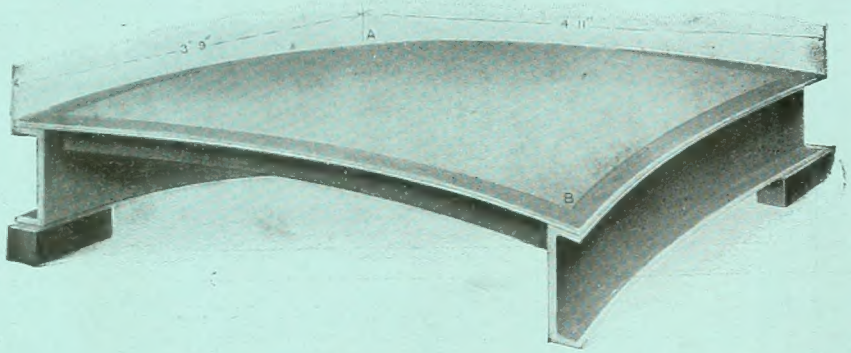

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Shipbuilding After the War.

Both shipbuilders and shipowners are deeply concerned with the question of the position of the shipbuilding industry after the war, and for that reason the pronouncements of so high an authority on the subject as Sir Owen Philipps, M.P., will be read with more than usual interest. At the meeting of the King Line held last week, at which Sir Owen presided, he stated that as soon as the time arrived, it was the directors' intention to acquire a number of steamers not only to replace vessels lost, but also to add considerably to the company's fleet. Passing from the particular policy of this company and dealing generally with the shipbuilding outlook, Sir Owen said it was certain that the longer the war lasted the greater would become the shipbuilding facilities throughout the world, as England, Scotland, Ireland, Canada, the United States and Japan were all very considerably augmenting the number of shipbuilding berths, and when peace returned it would be found that the total capacity for shipbuilding had enormously increased. How long it would take to make good the shortage in ships caused by the German submarine campaign was a matter of opinion, but one thing he considered certain, and that was, that Germany would probably be one of the worst sufferers from the shortage of tonnage, as it would be only natural for the Allies to use the tonnage which might be left to them for their own necessities first.

Returns on Requisitioned Steamers.

A case has come to our notice where an owner complains that he is unable to obtain a return for lying-up on a steamer under Admiralty charter, but still at Underwriters' risk, the grounds of refusal being stated to be that the vessel was lying at anchor with steam up during the unemployed period. If this be so there is still no reason why the return should not be collected on an ordinary marine insurance policy, provided the location in which the vessel was stationed complied with the provisions of the lying-up clause. In the Institute time clauses the payment of the return for lying-up is made conditional on the vessel being in port, and an express stipulation that no return shall be paid if she is in an open roadstead or waterway is added. It is probably on this provision being unobserved that the refusal to settle the return in the case cited is grounded. If the vessel was in a port or harbour there can be no justification for refusing to settle a return, whether steam was up or not. If the vessel worked cargo during the time she was laid up the return would in all probability still attach, a custom to pay returns under such conditions having come into use, though, strictly speaking, a vessel working cargo cannot be said to be "laid up." The circumstances, however, point to the refusal to settle being misunderstood, and on further enquiry it will probably be found that the place, and not the conditions of the laid-up period, is responsible for the collection of the return being resisted by the insurers.

New Valuation for War Risks.

The new system of arriving at the valuation of goods insured against war risks with the Government office will be welcomed by all concerned as making for simplicity, and therefore for greater efficiency and a saving of time. Up to the present, the valuation of such insurances has been based on the method adopted in the marine insurance valuation, and since there are several such methods in use the settlement of claims has, in many cases, been delayed till the necessary particulars have been obtained. To obviate this the new regulation provides that in future the basis of valuation shall be stated in the application for cover when made to the Government office, and no application will be considered unless the basis of valuation is stated thereon. In the adjustment of claims this valuation is the one which will be adhered to, and it will be stated on the Government War Risks Insurance Certificate, thereby becoming irrefutably fixed. An example given in the official announcement runs thus:—"Invoice cost plus all charges and ..... per cent. £... per ton (cwt., &c.) upon.....tons (cwts., &c.) of..... ; or £... per bale (case, &c.) upon bales (cases, &c.), of ....." The announcement is of additional interest at this time when the valuation of interests for marine insurance is attracting considerable attention, and is furthermore indicative of the infusion of practical business methods which has been noticeable of late in the policy of the Government War Risks Insurance Office.

100 per Cent. Sue and Labour Claim.

We have several times had occasion to refer to claims on insurances which amounted to 100 per cent., although the vessel on which the claim was made was not a total loss. A fresh case of this kind has recently been before the insurance market in the form of a claim for sue and labour charges. The vessel in question was light at the time the stranding occurred, so there was no other interest to bear its share of the salvage disbursements. The amount expended totalled considerably more than the value of the vessel for insurance purposes, and therefore the underwriters are called upon to meet sue and labour charges which aggregate considerably more than their lines. Further, since the valuation clause can only be enforced on abandonment, and the owner has not abandoned his vessel, there will be

average expenses to settle in addition, which will make the claim a heavy one indeed. It will be remembered that we mentioned a similar case in our issue of June 14, 1917, the vessel referred to then having also stranded. That case was complicated by the fact that a first attempt at salvage was unsuccessful, a second attempt by another contractor having better luck. This gave rise to a dispute as to whether the underwriters were responsible for the whole of the expenses, or only those incurred in the first attempt and such proportion of those brought by the second attempt as would bring the amount claimed equal with the insured value. The underwriters' contention was that any balance over this amount should be treated as expenses for the owners' account. As far as can be ascertained this dispute has not yet been settled, underwriters having paid 100 per cent. on account in the meantime. Of course, these claims, and many similar ones, are purely the outcome of the present abnormal state of affairs as regards labour, salvage appliances and maritime affairs generally.

State as Shipowner.

It is the opinion of the General Manager of the Chamber of Shipping that during the war the State has greatly mismanaged the mercantile marine, "despite the fact that our shipping is under the control of one of the ablest of our shipowners, assisted by an expert council, supported by expert shipowners in the Ministry as well as by the loyal assistance of every shipowner in the country." Reading that, the average man will probably be strongly tempted to jump to the conclusion that if British shipping has been mismanaged, British shipowners are themselves most to blame. Still, though Mr. Cleminson's point is a little obscure, it is a good point. Sir Joseph Maclay, and the shipowners associated with him, are administrators of a State policy, which is determined by national necessities, and not by business considerations. If the conditions under which they work were reversed there would be, we may be sure, no mismanagement; but unhappily they cannot be reversed while the war continues. British shipowners claim, however, that the control ought to be lifted at the earliest possible moment—in other words, that the State ought not to stay in shipping after the end of the war; and they support their contention, as Mr. Cleminson does in this instance, by citing the mismanagement which has taken place during the war period to date. It is quite clear, we think, that State control of shipping is not what advocates of Government ownership paint it.

Canada's State Programme.

Whatever may be happening in other parts of the Empire in the matter of tonnage output—and much more is being done than is likely to be made public yet awhile—it is obvious that Canada is carrying out the construction programme for Government account with little or no delay. It appears that the Dominion authorities contemplate laying down keels of no fewer than 40 vessels to the end of June of next year, and it is hoped to have a fair number of them in commission in record time. At the moment, it is not intended to create new shipyards, but rather to utilise existing establishments to their utmost capacity for ships under contract for the Imperial Government, but it is considered probable that work for private companies, and especially for foreign administrations, will come to an end when the vessels now in hand are ready for sea. Canada recognises that the chief difficulty in the way of successfully carrying out its plans arises from the fact that steel plates and shapes are not now manufactured in the Dominion, but have to be imported from the United States, failing, of course, our present inability to render any assistance to the Dominion. A similar trouble has also occurred in Australia and Japan. To overcome this obstacle, and to meet the situation in an efficient manner, plate mills are to be set up in different parts of Canada. Arrangements have already been made at Sydney, C.B., New Glasgow, Hamilton, and Sault Ste. Marie. If shipbuilding developments necessitate further action, more mills will be erected as required. The point is that Canada is determined to go ahead with the industry.

Shipping and Man-Power.

Sir Auckland Geddes has given assurances in the House of Commons that merchant shipping is treated as work of national importance. Such were scarcely needed, for the work of carrying on the shipping of the country is as essential as is combatant service. It is not in the contemplation of Parliament that anything from the activity of the mercantile marine or of the shipyards should be detracted by the Military Service Bill now passing its final stages. Of course, the steps to be taken under that measure will impose severe sacrifices, and they will have to be closely watched and adjusted in the interests of the commercial and economic stability of the country. Sir Auckland Geddes has shown grasp of detail in dealing with the problem of man-power, but all the skill and resource of the Department of National Service, of which he is the head, will be required if the new measure is to produce its full reflection of military effort. That effort would indeed be prejudiced if the flow of ships either in construction or in operation on the seas were checked. In these days, the Government and the Legislature are wiser in their views on shipping than they were in the earlier stages of the war.

Reprisals against German Trade.

Retaliation alone provides the moral and legal basis for the extreme stringency of the measures which we have adopted to stop the flow of German seaborne commerce through neutral channels. When the circumstances existing at the moment when the Dutch vessel *Leonora* was seized in open waters in August, 1917, on a voyage from Rotterdam to Stockholm with a cargo of German coal are kept in mind, the decree of condemnation just pronounced by the Prize Court is neither inequitable nor harsh. The indiscriminate atrocities committed by German submarines on Allied and neutral shipping led to the Reprisals Order in Council of February 16, 1917. It authorised the capture and condemnation of vessels carrying cargoes to and from countries contiguous to Germany if they had not previously called at a British or Allied port for examination. Several Dutch and Swedish ships have been seized on the high seas for failing to comply with this Order. This extreme measure of interference with the normal rights of neutral vessels could only be justified by an unprecedentedly abnormal situation, and the Prize Court, which administers the law of nations, has in the case of the *Leonora* and her cargo been called on to determine whether the Order had legal validity. Sir Samuel Evans, in giving it legal recognition, came to the conclusion that it was neither unreasonable nor excessive in the circumstances against enemy trade, and the consequential results to neutrals trading with the enemy gave them no right to complain. The Court therefore condemned the *Leonora* and her cargo.

Trade Unionists and Socialism.

In some quarters the view seems to be taken that the movement with the object of forming a Trade Union Labour Party, as distinct from a Socialist Labour Party, is foredoomed to failure. Probably it is; but we are not so sure as some of the pessimistic prophets appear to be that a great many workers do not see any need for such a party. Their assumption obviously is that Trade Unionism and Socialism are one and the same thing. The truth is, however, that they are not, and that nobody knows it better than the average Socialist, whose sole aim in associating himself with Trade Unionism is to capture its machinery in order

to achieve his revolutionary aims. Trade Unionists who are not Socialists are quite clear in their minds about that. They realise, moreover, that their defection from the National Labour Party would be less disruptive in its effect than the quarrel will be which must sooner or later develop between the political section and the economic section—between, that is to say, the Socialists who desire, to begin with, legislative control and the Socialists who desire first of all economic control. The idea at the back of the average worker's mind is, in fact, that far from being, as is claimed, a compact body, with no tendencies towards disintegration, the Labour Party has within itself the elements of at least half-a-dozen splits. It is suggested that the idea of the projectors of the new party is to wreck the existing organisation. But the conclusion of the average outsider will probably be that it is a natural outcome of the situation which is developing.

British Shipbuilders and Russia.

It is difficult, if not impossible, to write clearly about the economic situation in Russia, and all the more so because different authorities take different views on the subject. Some believe that the German grip will never be relaxed, whilst others are of the opinion again that the Peace Congress will entirely change the outlook, so far as that unhappy country is concerned. Proposals for the rehabilitation and development of the national mercantile marine have already been put forward as amongst the most urgent questions with which any future Government will have to deal. It is contended that an increase in the number of ships such as would not only replace the losses sustained during the war, but make it possible for Russian merchant vessels to take an active share in the trade movement on the most important sea routes, is one of the urgent necessities of the time. To achieve this object, the granting of shipbuilding bounties has again been recommended by the Ministry of Trade and Industry, a continuance of the refunding of Suez Canal, as well as Panama, dues, and the grant to owners of credit facilities by means of an enactment which will provide for the registration of trading vessels and the mortgaging of same. So far, shipbuilding in Russia has been confined chiefly to the provision of vessels for the Navy. Before the war several British firms had undertaken work at Baltic as well as Black Sea yards, but in the case of the latter, and the former might also be added, the prospects at the moment are none too promising. At Nicolaieff the construction facilities were greatly extended, with a view to the building of battleships, cruisers, destroyers, and submarines, but the seizure of that port may have caused considerable damage, although it is again said to be in Russian hands. Nothing, however, is known definitely about the mischief done, but the worst may be feared.

Fabrication's Future.

Exactly what the private interests which are projecting ship fabrication enterprises intend to do when the war comes to an end is necessarily obscure to us at the moment. We draw the conclusion, however, from an observation made by a representative of one group that it is the intention of several to continue their dependence on bridge yards and non-marine engine shops after the conditions have become normal. A week ago we indicated one or two of the difficulties which will have to be faced by enterprises of the kind proceeding on that line. The possibility did not occur to us, however, that anybody might deem it to be worth while to keep the machinery of inland steel-working and engineering establishments available for either its regular work or the fabrication of ship or marine engine parts as the need arose. Apparently, such an idea is in some minds. Without more intimate knowledge of the facts than we have, it is, admittedly, to take a risk definitely to doubt the wisdom of doing so. But it seems to us to stand to reason that if there has to be departure from orthodoxy in order to design a ship which bridge yards can build, the ship so fabricated is bound to be inferior in respect of economy to a ship of the same general dimensions built in the ordinary way. There is, in our opinion, a future for ship fabrication, but it will not, we are sure, be realised in this particular way. The fabrication will be done in large, new, ideally equipped central establishments devoted exclusively to the work.

U.S. Concrete Ships.

The news that the United States Shipping Board have, with the approval of President Wilson, submitted a Bill to the House of Representatives providing £10,000,000 for the establishment of five shipyards in which ships will be constructed of reinforced concrete is a further proof, if such were needed, that our American Allies have decided to leave no stone unturned in order to produce the largest possible tonnage in the shortest possible time. The first yard, it is announced, will be erected at Wilmington, and three ships of 3,500 tons, for which moulds are ready, will be completed; after that, vessels of 7,600 tons will be turned out. It is of interest to learn that their cost will vary between £20 and £25 per ton d.w., which according to the correspondent of *The Times* is little more than half that of steel ships. This throws an interesting light on the cost of steel shipbuilding in the States at the present time, although it should be pointed out that possibly the actual cost of building reinforced concrete vessels will prove to be rather different from that estimated. So far, despite much that has been said and written on the subject, the number of reinforced concrete vessels building in America is only three, although attention may be drawn to the vessel of 5,000 tons d.w. an account of the launch of which appears elsewhere in this issue.

Repair of Ships.

The submarine campaign has led to a wonderful increase in the amount of ship repairing work that is being done in the various yards around our coast, and when the time comes for the publication of the details of this work, it will be found that vessels which under ordinary circumstances would have been considered as too badly damaged to be worth salving, have been successfully brought into dock and returned to service within an almost incredibly short space of time. We occasionally publish details of these jobs, and in our issue of February 14 there appeared photographs and a description of the repairs carried out on a vessel which had been mined, and we publish in this issue, on page 436, details of the repairs to a vessel which had been badly damaged in a collision. In this connection it is interesting to recall the words of Sir Eric Geddes who, in his recent statement to the House of Commons, drew attention to the improved salvage arrangements that have been made, and which entail the repair of large numbers of damaged vessels. Repairs, he said, are to-day occupying more men actually and of higher skill and grades than is new merchant shipbuilding. At the present time the ship-repairing department of the Controller is undertaking repairs to probably four or five times the number of merchant ships damaged by enemy action than were under repair last June, and we have each month been returning to service an increasing number of ships

"Efficiency" of Cargo Ships.

Mr. Anderson, in his paper on "The Most Suitable Sizes and Speeds for General Cargo Steamers," read at the recent meetings of the Institution of Naval Architects, gave some valuable guidance as to how to arrive at the most efficient ship for stipulated conditions. As he said, the ultimate object of all interested in shipping is that the vessels engaged shall transport the maximum amount of cargo in relation to their initial cost, and at the cheapest possible freight rate. Unfortunately the (E), or the

efficiency value, which Mr. Anderson introduced into his paper, did not incorporate these conditions, but was arrived at solely from considerations of time spent on the actual voyage and time spent in dock. Probably the most important point brought home by Mr. Anderson was that it may not be wise to stipulate, as the primary consideration in determining dimensions, the total amount of deadweight to be carried. Thus a vessel 600 ft. in length with a gross deadweight of 23,500 tons, engaged on a voyage of 5,000 nautical miles, would transport less cargo in relation to her initial cost and that at a higher freight rate than one 460 ft. in length with 10,700 tons gross deadweight. Length of voyage, speed of ship, and derrick equipment must all be considered before the dimensions ensuring greatest economy can be obtained. When the dimensions are thus determined other points relating to efficiency must be considered, viz., economy in structural material, in machinery weights, in resistance and in fuel consumption. These latter requirements, however, are common to all ships apart from their dimensions, and Mr. Anderson's work affords a valuable guide as to how to proceed to determine the fundamental factors which will ensure the most economical transport of cargo.

SHIPOWNERS AND FABRICATION.

THE shipping correspondent of a contemporary suggests that owners are disposed to be doubtful about the superiority claimed by the First Lord for the "N" type of State standard ship as compared with the "A" type. Sir Eric Geddes said, it will be remembered, that in the newer design "we get 2,470 tons additional deadweight capacity for an extra 11½ ft. of length. Each ton of steel in the new type will yield," he went on to say, "4·06 deadweight tons against 3·53 tons for each ton of steel in the original type—an increase of carrying capacity of 15 per cent. for each ton of steel." The objection of owners is said to be that this theoretical gain in carrying capacity will not work out in practice, simply because all the cargoes which have to be carried are not deadweight cargoes. It is a good enough point, and we do not challenge it; but, if our memory serves, the fact that they were primarily deadweight carriers was deemed in shipping circles to be not the least important of the defects of the original standard ships.

It is pointed out that the standard ships were the result of "deliberations of high shipping and shipbuilding authorities." As almost everybody knows that they were, it is difficult to see why the fact is re-stated—unless the purpose is to suggest that the fabricated ship is not. In giving to the House of Commons the comparison we have reproduced, the First Lord claimed that the "N" type was not a bad result for experts who had been "branded as amateurs." In our opinion, he might profitably have gone further, and stated outright that the "N" type design had been got out by practical shipbuilders and not by amateurs. The matter is of minor importance, as, sooner or later, the work will tell its own story, but in our opinion, it is desirable that in criticisms of Admiralty administration care should be taken to be fair all round. And it certainly leaves something to be desired in respect of fairness to cause it to be inferred that the fabricated ship has been designed to the requirements of people who are not "high shipping and shipbuilding authorities."

We hasten to say that we do not believe the unfairness to be deliberate. It is, we suspect, due to misapprehension. Of the owners who are critical of the new type, it is said that while they are glad to "give full credit to any ingenuity which is proved to be effective in stimulating the rapid production of tonnage, it is not unnatural that they should view somewhat critically departures from established and successful forms"—hull forms, presumably. We are not in the secrets of the Department of the Director-General of Merchant Shipbuilding, but there is no need to be, in order to realise that owners who take that view scarcely grasp the situation. If the circumstances were normal, there would be no need to depart from established and successful ship forms. But the circumstances are not normal; even in the case of the standard ships—which are being built and not fabricated—there are departures which cannot be justified on grounds of pure economy.

In the case of the fabricated ship, the departures necessarily go further and are more numerous, and it is in overlooking that important fact that the owners whose criticism is indicated most convincingly demonstrate that they do not realise what is happening. The fabrication of ships is a war-period expedient, adopted with the object of utilising plants, closely resembling shipyard and engine-shop plants, in the production of tonnage. These plants are chiefly in bridge yards and non-marine engine and boiler shops, and when it occurred to the authorities to use them they were to all intents and purposes idle. The suitability of their resources to the fabrication of hull and machinery parts was closely investigated, and the conclusion arrived at was, broadly, that while they could not be used for the construction of ships of orthodox—or, as the criticism has it, established and successful—form, a ship could be designed whose parts might be fabricated by means of them.

Briefly stated, that is, as we see it, the evolution of the fabricated ship is not, and is not intended to be, as good an economic proposition as a ship of the same dimensions built in the ordinary way to an owner's stated requirements in a regular shipyard. Her earning power per unit of capital cost will probably be lower than that of an ideal ship produced under ideal economic conditions; but against that will have to be set the important fact that she is a product of existing industrial resources not already drawn upon for shipbuilding. In other words, by risking a small loss in economic efficiency, we are standing to make a large gain in tonnage output. In the light of these facts, it is clear, we think, that these critical owners are under a misapprehension.

THE AMERICAN SHIPBUILDING PROGRAMME.

THE official figures published on page 435 shed further light on the ambitious shipbuilding programme of the United States, to which we referred a fortnight ago in commenting upon a speech made by Mr. E. N. Hurley, Chairman of the American Shipping Board. Reference to these statistics will show that the vessels are divided into two broad classes as "under contract" and "under requisition." These terms are widely used in the States to differentiate between vessels ordered primarily by, and building for, the Shipping Board—these coming under the former category—and those which were on order, or building, for private ownership on the outbreak of war between America and Germany. These latter vessels were, as we would call it, "commandeered" and, as our readers know, a large amount of tonnage was lost to the British flag in consequence, forming in fact a considerable proportion of the 330,000 tons which the Prime Minister told the House of Commons last August would come from abroad.

Not all the requisitioned tonnage has been retained by the Shipping Board, as, early this year, American owners were informed that they could have the ships they had contracted for if they paid the actual cost, plus 10 per cent. This is, of course, a very different bargain from the original one, but it has the merit of settling the vexed question as to who should pay the added cost of shipbuilding. America therefore decided, within a year of war, the problem which, we believe, has never yet been determined in this country.

There is, of course, a marked difference between placing orders and completing the ships, so that the announcement that there are 1,557 ships of 9,260,017 tons d.w. contracted for or

requisitioned in the States conveys little idea whether the 3,200,000 gross tons or 5,000,000 d.w. tons said to be aimed at for this year are likely to be attained. It should be noted that only three concrete ships, totalling 10,000 tons d.w., are in hand, although a larger programme has since been put in hand. Steel vessels account for 81 per cent. and cargo vessels make up 84 per cent. of the total tonnage. Of the 1,360 cargo boats under contract or requisition 28 per cent. are wooden ships of 3,500 tons, the remaining 3 per cent. of wooden cargo boats consisting almost entirely of vessels above this figure to 4,700 tons. The range of steel cargo ships is 27 per cent. up to 5,000 tons (16 per cent. are about 5,000 tons each), 9 per cent. above 5,000 and below 7,500, and 28 per cent. above this figure to 12,500 tons d.w.). One would naturally expect large blocks of orders for vessels that could be most expeditiously built and so the proportions just given should be regarded in this light only.

We also publish particulars of the vessels completed in American yards last February, together with details of the estimated deliveries for March. These, be it noted, are officially issued in round —very round—figures. It will be recollected that in commenting upon the March figure of ships actually completed (20 ships of 162,200 tons), we expressed doubts whether the figure referred to the gross or deadweight tons. The output figures for February and the anticipations for March (which fall short of the actual result by 3 vessels) leave little doubt that they are deadweight. It is obvious therefore that, so far, America this year is behind the United Kingdom in output. However this may be the candour of publishing a forecast is refreshing. We can well imagine the mere contemplation of an official prognostication of this character making the Admiralty shudder. Since, however, our own authorities have unbent to the extent of giving us output figures within a few days of the conclusion of each month, and since the Americans seem irrevocably committed to deadweight figures, we would welcome the publication of the British output as deadweight as well as gross tonnage. No special information would be given to the enemy and the figures would afford definite data with which to watch the most wonderful race for shipbuilding supremacy in the history of the world.

TWO-STROKE VERSUS FOUR-STROKE DIESEL ENGINES.

IN an editorial note last week, we drew attention to the relative merits of the two-stroke and the four-stroke cycle of operations for Diesel engines and indicated that neither could claim to possess any decided superiority. It is not our intention to return to this vexed question again this week, but rather to draw attention to the results which have been obtained from a series of actual comparative tests made with two Diesel engines, each of 1,300 shaft horse-power, which have been built by the well-known Italian firm of Franco-Tosi, one being a two-cycle engine and the other a four-cycle engine. The engines have been built for the purpose of propelling submarines, and were tested by the firm themselves under naval supervision, with a view to deciding which was the better type to which their attention should be confined, and our American contemporary *Motorship*, to whom we are indebted for the statements and figures quoted below, states that the results obtained have led the builders to abandon the two-stroke engine in favour of the four-stroke type which they will build exclusively in the future.

Before giving the results obtained, it should be pointed out that the tests were carried out in the shop and not under running conditions at sea, and this fact must not be lost sight of in an attempt to judge between the two types for actual marine practice. Both engines were subjected to a non-stop full-powered run of 145 hours duration, the following results being obtained:—

Type of engine.	Two-cycle.	Four-cycle.
Number of cylinders	6	8
Rated horse-power	1,300	1,300
Maximum power without increasing revolutions ...	1,300	1,450
Normal revolutions per minute	300	300
Fuel consumed per b.h.p. hour	0·540	0·390
Lubricating oil consumed per b.h.p. hour	0·0180	0·0334

It will be noticed that with the four-cycle engine it was possible to considerably increase the power without increasing the revolutions, although apparently this was not possible with the two-stroke cycle.

The builders state that with their four-cycle engine the fuel consumption is much less because it has fewer auxiliaries to drive, and that the scavenging pumps of the two-cycle engine require a very high percentage of the whole power produced by the engine; also that the combustible mixtures are not of the same purity, due to the remains of the burned gases in the cylinders after each stroke, which require a higher scavenging air pressure and consequently higher absorption of engine power. Apart from the very great importance of the considerably increased power, and hence speed obtainable in times of emergency, the reduced fuel consumption makes a considerable difference to the length of voyage which the vessel can undertake without refuelling.

Franco-Tosi claim seven important reasons for having decided to abandon the construction of two-cycle Diesel engine:—(1) Elimination of the scavenging air pumps, together with air receivers, which results in diminishing the size of the motor and also the noise; (2) the amount of heat required to be extracted by the cooling water from valve heads and cylinders per unit of surface is much less in the four-cycle type, as there is the additional time of the exhaust and suction strokes during which conductors of heat can occur; there is thus a lower average temperature of water, which means a longer life of engine; (3) the danger of the remaining burnt gas in the cylinder is completely eliminated; with the two-cycle engine these gases remain in the upper ends of the cylinders, which keeps the bottom of the valve heads and cylinder walls very hot, thus considerably reducing the life of the whole engine; (4) in the four-cycle engine the possible piston speed is much higher, and as the average engine temperature is lower, a higher average pressure can without inconvenience be permitted; that explains why the four-cycle engine is practically of the same weight as the two-cycle engine, and virtually of the same over-all size; (5) possibility of running the engine with greater regularity at low speed and with a lower number of revolutions in the four-cycle motor, owing to the fact that when reducing the speed of a two-cycle engine, the cylinder compression falls very rapidly, because at low speeds the scavenging air pressure falls very much; experiments show that a two-cycle Diesel engine at 300 r.p.m. had a cylinder compression of 460 lb. per sq. in., at a speed of 120 r.p.m., the compression was only 315 lb. per sq. in.; with the four-stroke cycle engine at a speed of 300 r.p.m. the compression was 490 lb. per sq. in., and at 100 r.p.m. the compression was 445 lb. per sq. in.; (6) the mechanical parts of the four-cycle engine are much simpler, this being of advantage in the survey and in the supply of spare parts; (7) it is possible to drive the fuel pumps for each cylinder at half the number of revolutions of those of the two-cycle motor, which factor guarantees good and sure service of this device.

The results quoted above, and the action which they have led Franco-Tosi to take, are eloquent testimony of the superiority of at least that particular example of the four-stroke Diesel engine, and it may be added that Vickers, of Barrow, the New London Ship and Engine Company, of Groton, Conn., U.S.A., and Krupp's, of Kiel, have also abandoned the two-stroke engine in favour of the four-stroke. On the other hand, Sulzers, of Winterthur, Switzerland, and Fiat-San Giorgio have remained stedfast to the two-cycle principle, and it would still appear as if some deciding factor has yet to be discovered before one type will be entirely displaced in favour of the other

PUBLICATIONS RECEIVED.

[*A short notice of any publication does not necessarily preclude the subsequent appearance of a longer review.*]

The Strength of Ships. By J. Bertram Thomas, A.M.Inst.C.E. London: Scott, Greenwood & Son, 8, Broadway, Ludgate, E.C.4. $4\frac{3}{4}$ in. × $7\frac{3}{8}$ in. × $\frac{5}{8}$ in. 290 pp., with 114 diagrams and 31 tables. Cloth, 5s. net.

This little work represents the result of an attempt—and, we may add, a successful attempt—to deal with a very difficult subject in such a way that the student having absolutely no preliminary knowledge of such subjects as the strength and elasticity of materials or the theory of structures, may at once be able to study the science of naval architecture, at least in so far as it deals with the strength of ships. To this end the author has produced a work which may justly claim to be complete in itself, and instead of assuming that his reader possesses a knowledge of shearing forces, bending moments, beams or struts, these are dealt with right from the preliminary definitions—albeit hurriedly—in so far as such knowledge is essential to a clear understanding of the structural problems in a ship, the aim being to present the principles underlying the subject in the simplest language and to arrange each chapter so that the student may see the applicability of the theoretical matter to his own profession. The author does not claim to have written an advanced treaty on the subject, but expresses the hope that a study of his book will awaken the interest of the student and lead to a further study of larger works.

There are 16 chapters in the text, which may be roughly classified in two groups, the first dealing with general principles, comprising eight chapters, and dealing with such subjects as "Materials of Construction and their Properties," "Methods of Integration," "Deflection of Beams," &c., and the second group dealing with definite problems on the strength of ships, such as "Longitudinal Strength of Ships," "Effect of Rolling and Pitching on the Upper Structures," "Riveted Joints in Ship Work," &c.

The book has been carefully and clearly printed, and the diagrams, though rather small at times, are fairly clear. There are 30 pages of tables, such as are usually found in naval architects' pocket books, and a useful index is appended. Altogether this little volume is a welcome addition to the literature of the subject, and one which can be thoroughly recommended to young students of naval architecture; to these it will have the great advantage of giving them that sound elementary knowledge of their subject which is so essentially a stepping stone to the knowledge of the more advanced stages, and they will be saved the discouragement which often follows the study of a book which is rather too difficult for all save the most brilliant of beginners.

TRADE PUBLICATIONS.

[*Copies of any of the publications mentioned in this section will be sent on application to the firms by which they are issued.*]

Double Reduction Marine Turbine Gears.—The Power Plant Company, Ltd., West Drayton, Middlesex, send us their illustrated pamphlet describing their patent double reduction gears for ship propulsion. The first two pages of the pamphlet contain the table taken from Mr. Cleghorn's Presidential Address to the Institution of Engineers and Shipbuilders in Scotland, which was published in our issue of October 25, in which he shows the superior economy of the turbine fitted with double reduction gear as compared with the turbine fitted with single reduction gear, the direct coupled turbine and the reciprocating engine, thus justifying—if justification is needed—the placing of this type of gear on the market. The subsequent pages are devoted to a description of this type of gear as built by the Power Plant Company, the advantages of their particular method of construction being set forth. The drawings showing different views and the gear lay-out of a 2,600 h.p. unit reducing from 3,000 to 70 r.p.m. are included, and the pamphlet concludes with a specification of the various parts of the gear. It is of interest to note that the makers supply the Michell Patent thrust block made as an independent unit and bolted to the gear case.

AMERICAN SHIPBUILDING FIGURES.

The United States Shipping Board authorises publication of the table on the opposite page showing the number, type, and tonnage of the vessels which have been requisitioned or are under contract for construction.

It is also officially announced that 15 steel vessels, aggregating 114,100 tons, were completed and delivered from American shipyards in February for the Emergency Fleet Corporation. It is expected that in March the total number will be increased to 23 vessels, of an aggregate tonnage of 188,275. Some of the ships included in the March schedule have been already completed. The following table shows the February record of vessels completed and delivered:—

Description.	Tonnage.	Date of completion.
Cargo vessel	8,800	Feb. 12
Do.	8,800	Feb. 4
Do.	9,400	Feb. 4
Do.	8,800	Feb. 4
Do.	10,000	Feb. 3
Do.	6,000	Feb. 6
Tanker	14,900	Feb. 14
Collier	8,600	Feb. 15
Cargo vessel	8,800	Feb. 22
Do.	8,800	Feb. 26
Do.	8,800	Feb. 16
Do.	3,100	Feb. 14
Do.	3,100	Feb. 14
Do.	3,100	Feb. 25
Do.	3,100	Feb. 27
Total	114,100	

The estimated deliveries for March are shown in the following table:—

Description.	Tonnage.	Date of completion.
Tanker*	10,475	Feb. 28
Cargo vessel	8,800	Mar. 4
Do.	3,300	Mar. 6
Do.	4,500	Mar. 1
Do.	7,500	Do.
Tanker	7,000	Mar. 7
Do.	10,475	Mar. 4
Cargo vessel	8,800	Mar. 9
Do.	7,500	Mar. 10
Do.	6,200	Mar. 11
Tanker	12,650	Mar. 15
Cargo vessel	8,800	Do.
Collier	8,600	Do.
Tanker	10,300	Do.
Cargo vessel	8,800	Do.
Do.	8,800	Mar. 17
Collier	4,900	Mar. 20
Cargo vessel	10,500	Mar. 25
Do.	3,300	Do.
Tanker	9,000	Mar. 27
Cargo vessel	8,800	Mar. 30
Do.	8,800	Do.
Tanker	10,475	Mar. 31
Total	188,275	

* Accepted March 1.

The above figures presumably relate to deadweight tonnage, which basis, it will be observed, is also adopted in the tables on the opposite page. The estimated deliveries for March fell short of the actual output, which was 20 vessels of 162,200 tons.

From unofficial sources it appears that shipbuilding operations are being conducted on an extensive scale this spring at the head of the Great Lakes. Three shipyards are in operation at Duluth, each employing from 600 to 1,000 men, and work is being pushed in the construction of several cargo boats for the Emergency Fleet Corporation. The Superior Shipbuilding Company, at Superior, recently launched a 3,300-ton boat for ocean service, and has three others on the ways. The Globe Shipbuilding Company, also at Superior, is working on five boats. The company proposes to enlarge its plant this spring. At the McDougall-Duluth Company's shipyard at Duluth, two ocean-going cargo boats have been launched so far this year, and work is proceeding on four others.

AMERICAN SHIPBUILDING FIGURES.

Number, type and deadweight tonnage of vessels under contract or requisitioned by the Emergency Fleet Corporation, segregated as to wood, steel, composite, and concrete.

Type of vessels.	Vessels under contract.									
	Total.		Wood.		Steel.		Composite.		Concrete.	
	No. of vessels.	Deadweight tonnage.	No. of vessels.	Deadweight tonnage.	No. of vessels.	Deadweight tonnage.	No. of vessels.	Deadweight tonnage.	No. of vessels.	Deadweight tonnage.
Cargo :										
2,000	1	2,500	1	2,500	..	..	..	..	..	..
3,000	1	3,000	..	..	..	..	..	..	1	3,000
3,500	457	1,599,500	381	1,333,500	24	84,000	50	175,000	2	7,000
4,000 and under ..	37	147,650	29	115,650	..	..	8	32,000	..	..
4,500 and under ..	6	27,000	6	27,000	..	..	..	..	..	..
4,700	12	56,400	12	56,400	..	..	..	..	..	..
5,000 and under ..	220	1,022,700	..	..	220	1,022,700	..	..	..	..
6,000 and under ..	13	74,100	..	..	13	74,100	..	..	..	..
7,500 and under ..	76	569,600	..	..	76	569,600	..	..	..	..
8,800 and under ..	98	862,400	..	..	98	862,400	..	..	..	..
9,000	80	720,000	..	..	80	720,000	..	..	..	..
10,000 and under ..	86	814,800	..	..	86	814,800	..	..	..	..
12,000 and under ..	16	170,900	..	..	16	170,900	..	..	..	..
Total	1,103	6,070,550	429	1,535,050	613	4,318,500	58	207,000	3	10,000
Cargo and transports :										
8,000	70	560,000	..	..	70	560,000	..	..	..	..
10,000	5	50,000	..	..	5	50,000	..	..	..	..
Total	75	610,000	..	..	75	610,000	..	..	..	..
Tankers :										
7,500	3	22,500	..	..	3	22,500	..	..	..	..
10,000 and under ..	9	87,300	..	..	9	87,300	..	..	..	..
10,100	15	151,500	..	..	15	151,500	..	..	..	..
Total	27	261,300	..	..	27	261,300	..	..	..	..
Tug boats	20	..	14	..	6	..	..	..	..	..
Grand total ..	1,225	6,941,850	443	1,535,050	721	5,189,800	58	207,000	3	10,000
Grand total requisitioned and under contract	1,557	9,260,017	443	1,535,050	1,053	7,507,967	58	207,000	3	10,000

Type of vessels.	Vessels under requisition.			
	Total.		Steel.	
	No. of vessels.	Deadweight tonnage.	No. of vessels.	Dead. weight tonnage.
Colliers :				
5,000 and under	3	14,700	3	14,700
9,000 and under	4	34,400	4	34,400
Total	7	49,100	7	49,100
Passenger and cargo :				
5,000 and under	4	18,972	4	18,972
6,000 and under	2	10,600	2	10,600
Total	6	29,572	6	29,572
Tankers :				
5,000 and under	2	8,900	2	8,900
7,500 and under	7	49,300	7	49,300
8,800 and under	3	24,880	3	24,880
9,000 and under	7	63,000	7	63,000
10,000 and under	12	115,400	12	115,400
12,500 and under	15	161,295	15	161,295
12,650 and under	1	12,650	1	12,650
Total	47	435,425	47	435,425
Cargo :				
3,500 and under	82	267,280	82	267,280
5,000 and under	35	155,100	35	155,100
6,000 and under	2	11,000	2	11,000
7,500 and under	29	212,500	29	212,500
8,000 and under	2	16,000	2	16,000
8,800 and under	48	420,200	48	420,200
9,000 and under	14	126,000	14	126,000
10,000 and under	19	184,840	19	184,840
12,500 and under	24	286,450	24	286,450
15,000 and under	2	28,000	2	28,000
Total	257	1,707,370	257	1,707,370
Refrigerators :				
7,500 and under	12	77,700	12	77,700
10,000 and under	1	10,000	1	10,000
Total	13	87,700	13	87,700
Transports :				
5,000 and under	2	9,000	2	9,000
Grand total ..	332	2,318,167	332	2,318,167

Requisitioned vessels completed and accepted or reconveyed.

Type of vessels.	No. of vessels.	Deadweight tonnage.
Colliers :		
8,600 tons	1	8,000
12,650 tons	1	12,650
Total	2	21,250
Ore carriers :		
6,000 tons	1	6,000
11,300 tons	4	45,200
17,060 tons	1	17,060
Total	6	68,260
Passenger and cargo :		
4,986 tons	1	4,986
Tankers :		
5,000 tons	1	5,000
8,500 tons and under	2	16,630
9,000 tons	2	18,000
Tankers—continued.		
10,475 tons and under ..	4	41,725
14,900 tons and under ..	5	72,150
Total	14	153,505
Cargo :		
3,500 tons and under ..	26	82,520
4,500 tons and under ..	7	28,700
6,000 tons and under ..	4	22,500
7,500 tons and under ..	8	57,960
8,800 tons and under ..	14	123,200
10,000 tons and under ..	7	67,860
12,500 tons	3	37,500
13,000 tons	1	13,000
Total	70	433,240
Grand total	93	681,241

Vessels contracted for and requisitioned.

Character of vessels.	No. of vessels.	Total deadweight capacity.
Wood	443	1,535,050
Steel	723*	5,207,400
Composite	58	207,000
Concrete	3	10,000
Total contracted	1,227	6,959,450
Total requisitioned (all steel) ..	425†	2,999,408
Grand total	1,652	9,958,858

* This total includes 2 vessels of 8,800 tons each, completed and accepted.

† This total includes 93 vessels of 681,241 tons which have been completed and accepted or reconveyed to original owner.

March 12, 1918.

Additional Cargo Space for Suez Canal Traffic.—Under the rules of the Suez Canal Company, if any cargo is once carried in a space exempted from the tonnage of the ship, that space is added permanently to the tonnage of the ship, and canal dues are charged on that space for ever afterwards. This prevents owners from carrying any goods whatever in the superstructures and other exempted spaces, and it is most important at the present time that ships should fill up every available space with foodstuffs and other essential commodities. The Board of Trade recently proposed to the Suez Canal Company that as a war emergency measure the above rule should be suspended during the war, and that if the cargo were carried in an exempted space, dues should be charged on that space on each occasion on which it was occupied by cargo, but that the space should not be permanently added to the tonnage of the ship. The Suez Canal Company at once, without any hesitation, accepted this suggestion as soon as it was put before them, and official letters have been sent to the Shipowners' Associations informing them of this decision.

AN INTERESTING COLLISION REPAIR.

We are able to give hereunder particulars of a very interesting repair recently carried out to a steamer by Mordey, Carney & Co., Ltd., ship repairers, in dry-dock at their works at Newport, Mon.

This vessel was originally German owned, and at the outbreak of hostilities was taken as a prize. After doing useful work for some months she eventually had the misfortune to come into collision with a large passenger steamer, whose bow entered the hull of the vessel under review immediately forward of the bulkhead dividing Nos. 1 and 2 holds, practically severing the vessel in two. The vessel was eventually beached and endeavours were made to salve her, but after several attempts it was found to be hopeless to attempt to salve the whole vessel, and it was decided to cut away the forward part of the structure at the breach and to attempt to salve the after part only. The bulkhead was made watertight and heavily shored, and the after part was successfully salved and towed to Newport, Mon., for repairs, where she was dry-docked in one of Mordey, Carney & Co.'s dry-docks.

It was found that the vessel had entirely lost 80 ft. of her fore body, and it was decided to build an entirely new fore end on the vessel in dry-dock. This was accomplished in just under five months, which may be considered a very speedy repair under present conditions. Not the least interesting feature of this repair was the fact that no shipbuilders' drawings, lines, or any record whatever of the original form of the fore end of the vessel were available, and it was therefore necessary for the repairers to entirely re-design the fore end to suit the part of the vessel remaining intact. In carrying out the construction of the new portion of the vessel a total weight of 260 tons of new steel was used.

The vessel was built of steel to three-deck rule, having a poop, bridge and forecastle, the principal dimensions being :—

Length b. p.	280 ft.
Breadth, extreme	38 ,,
Depth, moulded to upper deck	26 ,,

The gross tonnage is 2,400, the load draught being 22 ft., the vessel carrying 600 tons of bunkers.

The illustrations on pages 437 to 439 show the condition of the vessel when entering dry-dock, together with progress of repairs at various stages, and one of the vessel proceeding to sea completed. From reports received of the performance of the vessel since the completion of the construction of the new fore end, it appears that her average speed is the same as before the accident, and that she carries slightly more cargo in the forward hold.

This may be described as a " war time " repair, and is a type of work which, except in the case of large and valuable vessels, was seldom carried out in dry-dock in pre-war days.

GERMAN HOPES FOR TRADE RESUMPTION.

The German newspaper *Hansa* rejoices that " peace is now secured in the East " and that the way is open for the resumption of trade with Russia, Roumania and Finland. The following points of interest are gleaned from several columns of data concerning traffic in past years and general prospects for the future. No definite estimates are given concerning the trade developments which may be expected in future, but it is obvious that Germany is hoping to make greater progress (if not to acquire virtual monopoly) under a scheme of preferential treatment.

The views expressed by *Hansa* concerning Russia, Roumania and Finland may be summarised as follows : According to the peace terms between Germany and Russia, commercial traffic in the Baltic and Black Sea is to be renewed as soon as the minefields are cleared. A new commercial treaty will secure preference to Germany as a " most favoured nation " until 1925. Since 1905, Germany has had a larger share than any other country in Russian Baltic traffic. In 1912 the total tonnage was 11,330,205 tons, of which Germany had 21·9 per cent. of the total, compared with 19·4 per cent. British tonnage. In 1895 the order of precedence was British, Danish, and German tonnage. Germany's share in Black Sea and Sea of Azoff tonnage was only 1·1 per cent. in 1895, but by 1912 this figure had risen to 7·8 per cent. (fifth in order of magnitude, British tonnage representing 37·5 per cent.). It is a German dream that Teutonic influence shall be supreme, first in the Near, and then in the Far East.

As regards traffic with Russian ports on the White Sea, Germany claimed 17·9 per cent. of the total tonnage in 1912 (British and Norwegian tonnages leading) ; the corresponding figure for Pacific ports was 6·2 per cent., German traffic there being less than Russian, Japanese and British tonnages.

Germany's share in Rumanian traffic before the war was inconsiderable, amounting only to 84 vessels in a total of about 3,030 vessels in 1911, when Germany stood eighth in point of number of vessels. British tonnage was predominant before the war, and so it will be, we venture to say, after the war. The most pressing needs which Germany hopes to meet from Rumanian sources are supplies of petroleum and agricultural products.

Simultaneously with the peace treaty between Germany and Finland, a trade and shipping agreement has been reached under which each of the contracting parties extends to the other the same trade privileges as are accorded to its own citizens. In respect of railway and shipping rates as well, Germany is to be the " most favoured nation." Excluding traffic in the Ladoga Sea (which was shared about equally by Russian and Finnish vessels) the Finnish sea traffic in 1911 (latest year tabulated) was about 4,884,952 tons, in which the national flag claimed 38·6 per cent. and the German flag 8·2 per cent. Present conditions are held to be " most favourable for the development of brisk traffic between Germany and Finland."

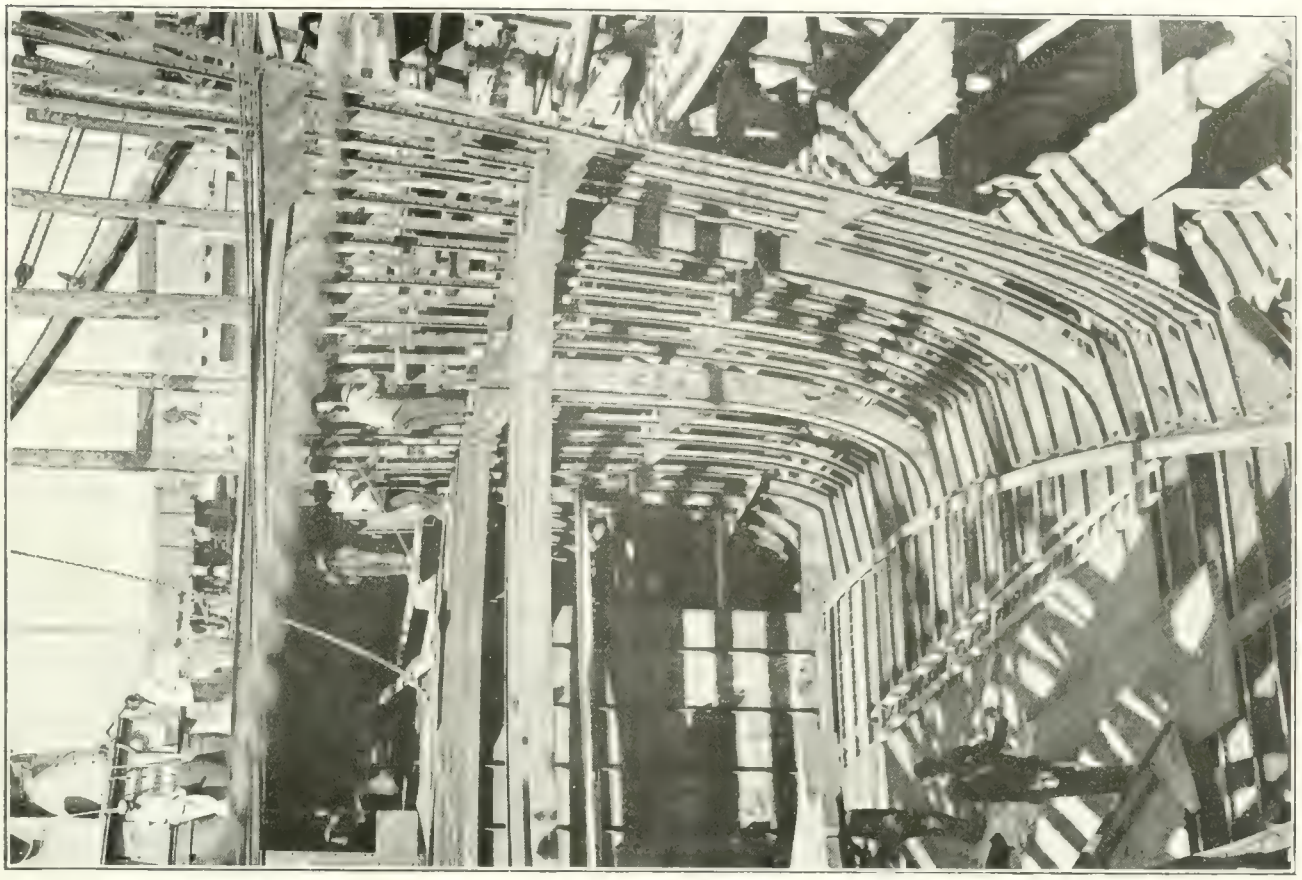
AMERICAN WOODEN SHIPS.

We have from time to time drawn the attention of our readers to the efforts which are being made by the American Shipping Board to supplement the output of steel vessels by the building of wooden ships, these latter to be fitted with either steam or oil engines, and to serve mainly as coasting vessels, thus releasing steel vessels for the transatlantic services. Many difficulties have had to be faced, chief among which have been the utilisation of green pine for constructional purposes instead of seasoned oak, and the finding of men sufficiently skilled in the difficult craft of wooden shipbuilding. These difficulties are, however, gradually being overcome, and we reproduce on page 440 two photographs illustrating the progress which is being made in the building of this class of vessels. The first shows the nearly completed hull of a wooden vessel which has been laid down at the Ward Shipyard, Olympia, Washington, and the second shows the hull of a rather different type of wooden vessel immediately after launching, both illustrations giving a good idea of the fine lines which are being adopted on these ships, and also of the general lay of the planking.

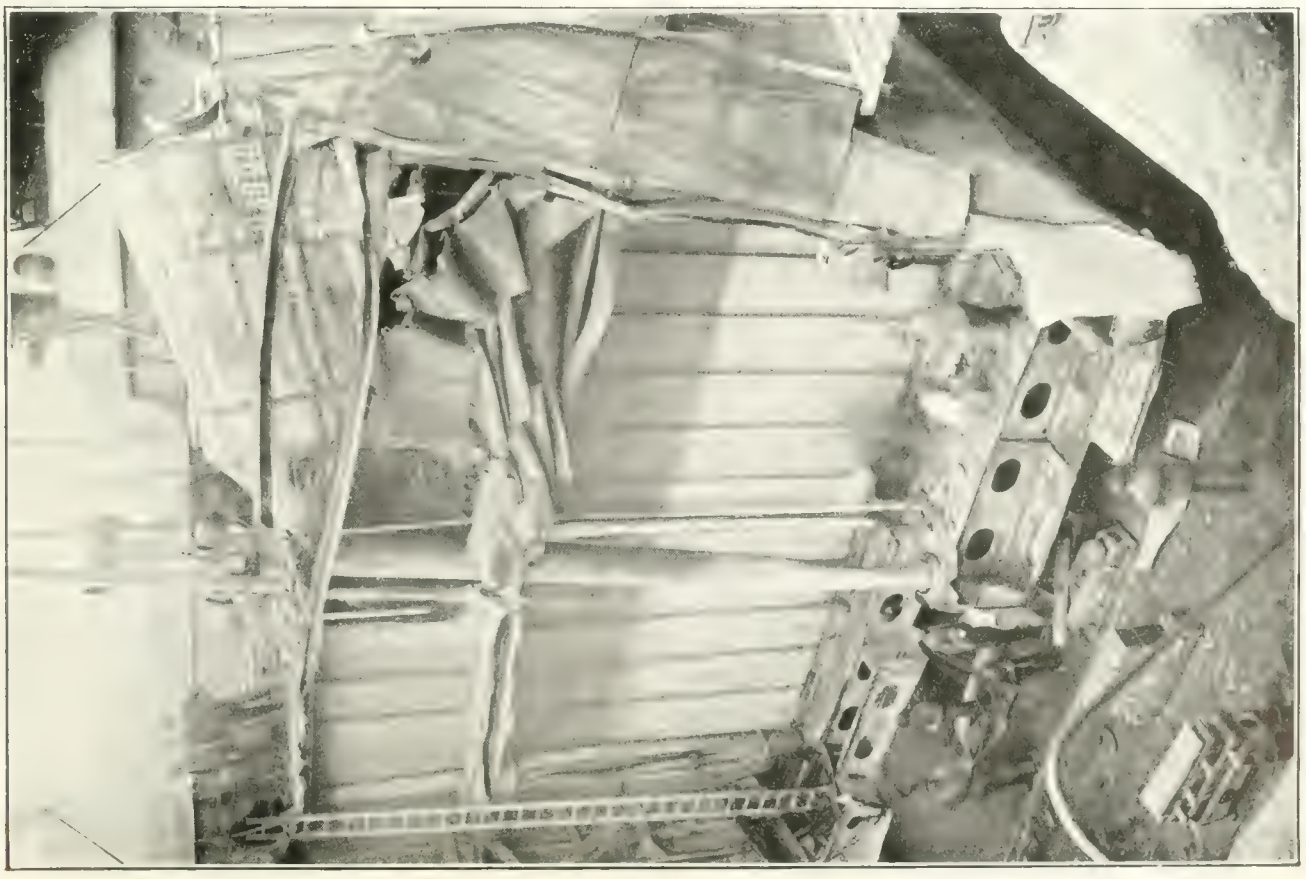
These photographs have been issued in America by the Committee of Public Information and are issued in this country by the Topical Press Agency.

The Shipbuilding Output.—The Controller-General of Merchant Shipbuilding (the Right Hon. Lord Pirrie) states that he has been urged to give an estimate of the tonnage output for the next three months, but refrains from doing so, as he feels that deeds are better than words, and that it will be better to let facts speak for themselves at the end of each month rather than to give an estimated figure of tonnage output, a sentiment with which he believes " the man in the street " and the worker will entirely agree. The various shipbuilding areas are now working in keen rivalry, especially on the Clyde and Tyne. The employers and the men are all striving to provide the maximum monthly quota.

AN INTERESTING COLLISION REPAIR.



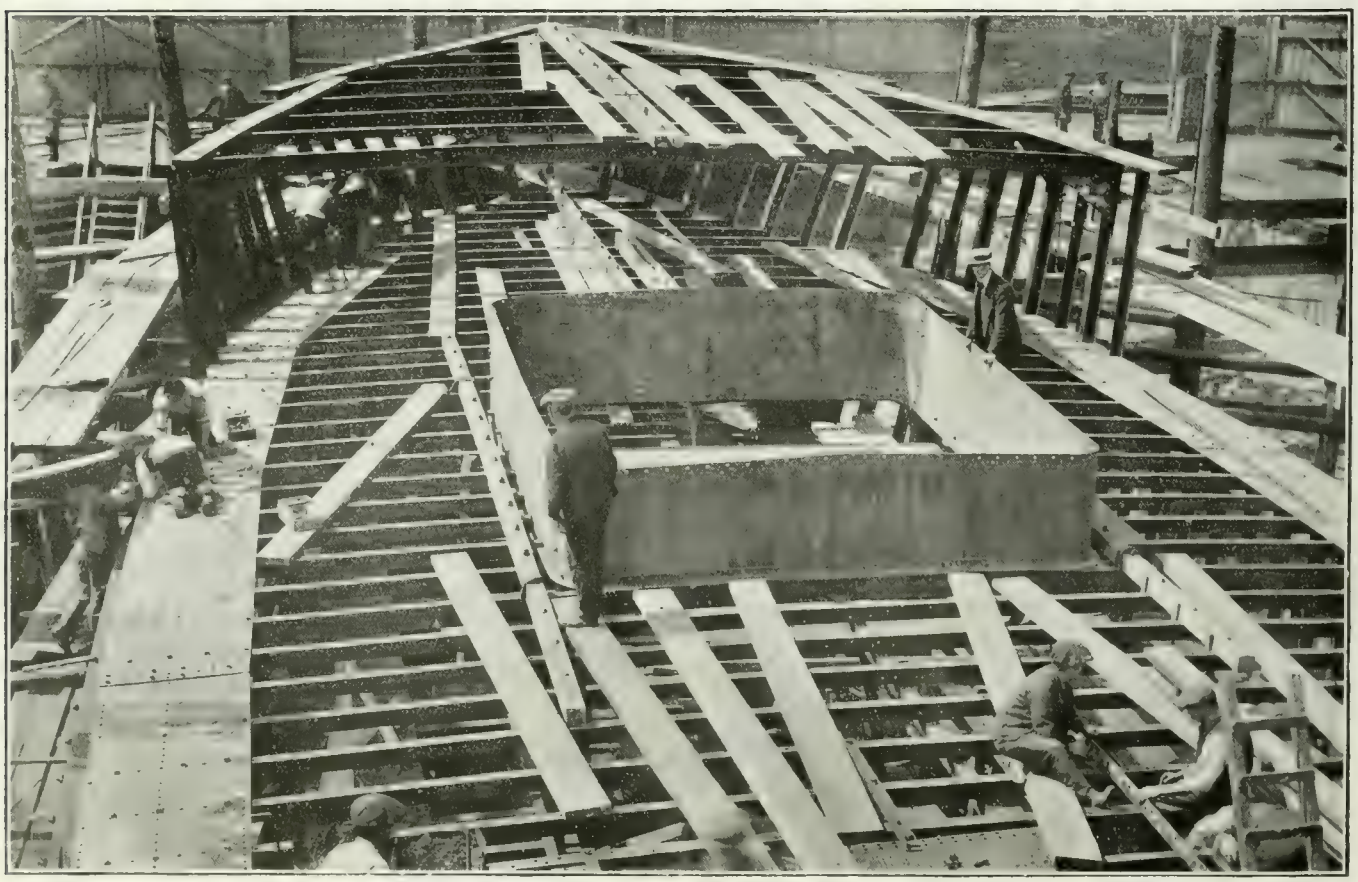
Fore Part, in Frame. June 10, 1917.



Vessel Docked, Stern First. March 21, 1917.

AN INTERESTING

Framing Completed. July 1, 1917.



Deck Beams and Hatch in Place. Deck Plating commenced, July 10, 1917.

COLLISION REPAIR. (See page 436.)

Approaching Completion. August 6, 1917.

Vessel Completed and Undocked. August 25, 1917.

An American Wooden Ship nearing the Launching Stage.

An American Wooden Ship just Launched. (*See page* 436.)

EFFECTS OF WAR ON MERCHANT SHIPBUILDING.*

(*Concluded from page* 317.)

Another effect of wood shortage is the increased use of substitutes for wood sheathing on steel decks, but so far these have not proved an unqualified success. The chief drawback of these compositions, particularly those in which sawdust is bound together in a stone-like mass, is that they retain a quantity of chloride of magnesium, a solution of which is powerfully corrosive to steel, and which may accumulate between the composition and the steel deck. The formation of this solution will be accelerated if water is allowed to percolate through the porous material or cracks which may develop in it. As these compositions expand on first setting, and continue to expand for some time afterwards, there is thus a tendency to bulge and crack even on a rigid floor, and it is therefore imperative that the steel plating should be coated with an elastic adhesive anti-corrosive solution before such substitutes are laid. These substitutes are obviously not suitable for weather decks.

Bitumastic deck-coverings are now being adopted within enclosed spaces. They are elastic to a degree, and adhere to the steel deck-plating, which is previously coated with a special solution. Cork plates are also used for covering cabin and saloon floorings, and were introduced just before the war. The plates are made of cork cuttings 12 in. by 12 in. by 1 in. formed under pressure; they are easily worked by plane and chisel, have a smooth surface, and are light in weight. It is claimed for them that they can be quickly laid and, with a suitable solution, adhere well to the steel plating and to the linoleum, with which they may be covered on the upper surface.

The present high cost of spelter has led to economies in galvanising iron-work fittings of merchant vessels, and, except where these are partly covered or concealed, and therefore cannot be preserved by painting, it is considered that galvanising may be dispensed with. The economy suggested may not amount to perhaps more than £150, but when added to the time required between the dispatch to and the return of the fittings from the galvanising works, the saving becomes more apparent.

Increased Use of Steel Piping.

The scarcity of copper piping, and the necessity for conserving the available supply of the raw material, has led to an increased use of steel piping for supplying steam to deck auxiliaries. The exposure of steel pipes to all weathers, and the moistened state of the steam within them accelerates their depreciation, and, compared with copper piping under the same conditions, their effective life may be about as 2:4·5. But if the holes in the flanges of the steel piping be bored from a template, so that, at intervals of some months, the pipes may be slightly turned round, their endurance may be increased to an appreciable extent, particularly if the metal of the bends be slightly increased in thickness. It would be an advantage to the engine-room staff, and a saving of time to an owner, if a few well-made temporary steel-shields or sleeves were stored on board for the ready repair of fractures in steel steam pipes, occurrences which, of course, are always unexpected, and inopportune.

The ship ironmongery and electrical trades have not been penetrated by foreign competition. In the former, however, economy has been attempted by the substitution of iron for brass in many of the joiners' fittings, but the resulting economy is more apparent than real, because, in the first place, iron is less easily worked than brass, and, in the second place, large quantities of scrap brass are used in the manufacture of these articles, which makes no demand on the raw materials.

The decrease in Spanish imports has produced a little surprise for electrical manufacturers and others, for it was not generally known that the slate panel-insulators fitted in switch-boards were obtained in pre-war times from Spanish quarries. Their preference to the best home qualities is due to their greater freedom from metallic veins.

British textile manufacturers have been for ages of world-wide fame, yet previous to the war, as I am credibly informed, 90 per cent. of the textiles, carpets excluded, required for the outfit of our British passenger liners, were of German manufacture, excellent in quality and artistic in design and colouring, which could not be matched in the home trades. I am glad, however, to be assured that British manufacturers are fully alive to the situation, and are now in a position to meet all future requirements.

Effect of Naval and Military Requirements.

The demands made on merchant shipping by the naval and military authorities have been numerous and varied. Vessels have been transferred from their usual trade routes to unfamiliar seas, and loaded to draughts and trims differing from those of their former service conditions, with the result that they have in some cases developed unexpected signs of stress. Other vessels, building for general cargo trade, have been converted to oil-in-bulk carriers, and have had to be specially strengthened for this purpose, while many of our river pleasure craft, designed only for inland water service, have been put to strenuous work in rougher waters hitherto considered to be beyond their strength. The Government, too, have placed numerous contracts, wide-spread over the shipbuilding centres, for special vessels of many types designed to meet the requirements of war in the minor fighting line, also for the transport of the sick and wounded by river and sea, and the scavenging of the waters for those hidden piratical pests of which everyone in this country knows only too well. As a result, many shipbuilders, and the profession generally, are gaining experience they were not likely to have acquired otherwise, and which must be wholly beneficial. When the time arrives, which unfortunately is not yet, to examine and scrutinise this experience produced by necessity, it may be found to have an effect in modifying some of the preconceived ideas in construction, local strengthening, &c.

Oil Fuel.

Owing to the greatly increased demand for oil fuel, caused by the war, practically all merchant vessels have had their double bottoms, and other tank spaces, adapted for the carriage of oil-fuel cargo. These tanks can be made readily available for this heavy oil, which has a high flash point, the alterations consisting mainly in a modification of the pumping arrangements, with the addition of a few air pipes carried up to the under side of the bulwark rail. Ceiling need not be fitted on the tank top plating, and it is the experience of shipowners that all kinds of cargoes can be safely carried on dunnage wood when the tanks are filled with oil. The ordinary construction and riveting adopted for water-ballast tanks has been proved by experience to be efficient for this class of oil. Cement need not be fitted in these tanks, which in the case of an 8,000-ton vessel may mean the saving of about 85 tons in weight. The oil, too, has a preservative effect on the steel, provided it is free from water. It should be noted that where tanks are used alternately for the carriage of water ballast and oil the steel work may be liable to pitting. Pitting has been observed in oil-tank vessels on the surface of the outer strakes of bottom plating, and at other places where the drainage was not quite free, in some few cases to the extent of $\frac{1}{8}$ in., and spotted over a fairly large but localised area. Although in some instances scrapings taken from these holes have been carefully examined and subjected to chemical analysis, the results have not disclosed anything either in the nature of the steel or of the oil which would explain the occurrence. On the other hand, it has been noted that pitting of the bottom plating does not take place in bunkers exclusively used for the carriage of oil fuel, and where pitted bottom plating in tanks has been coated with Portland cement, and flushed up to give better drainage, it has been found on re-examination to have arrested the pitting. It may be presumed therefore, that the pitting is due to the corrosive action of small

* Paper read before the Institution of Engineers and Shipbuilders in Scotland, held in Glasgow on March 19, by Mr. James Craig, one of the Senior Surveyors of Lloyd's Register.

quantities of salt water retained in the tanks after discharging, or to water loaded with the oil which has settled on the inner surface of the bottom plating. It is, therefore, important that the drainage of oil tanks should be carefully considered, especially in those without bottom cement and used alternately for the carriage of water ballast and oil cargoes.

Development of Standardisation.

Perhaps the most notable effect of the war has been the increased development of the standardisation idea as applied to shipbuilding. Some critics have expressed a fear that standard shipbuilding may lead to the manufacture in multiple of rigid types, merely with the object of gaining greater output, to the exclusion of originality of thought and design. Others, again, have opposed the principle of standardisation, and have also criticised the types and dimensions of standard vessels now building. There may, of course, be legitimate conflict of opinion as to the best types and dimensions, but the gain or loss on this point is small compared with the urgent national necessity for the rapid production of new tonnage, which forbids delay in unnecessary discussion.

It is highly improbable that by the adoption of standardisation, originality of thought and design will be suddenly arrested, and if evidence of this be necessary, it is furnished by the large cargo-carrier building firms who, in effect if not in name, have standardised for many years, progressively maintaining their best types, and producing vessels rapidly by means of well-organised labour, methods of production, and the best equipment.

The standard vessels building for the Government are all of the cargo type, designed to meet the urgent requirements of the nation, and have no special features. They are built on the deep-frame principle, without side stringers; the sectional material has been reduced to as few sizes as possible to facilitate the rolling and delivery of the material, and they give a good deadweight capacity for the weight of steel employed. In all these standard vessels, much attention has been given to the arrangements for the accommodation of the officers and crew. The latter are housed in two-berthed cabins in the poop, where also a mess-room, bathroom, and lavatory accommodation are provided, an arrangement which is a great improvement on that usually fitted in a forecastle, and must add to the seafarer's material comfort, and tend to ameliorate the hardships of his life.

A point worth noting in these standard vessels is that an improvement in the water-tight subdivision has been effected by fitting a steel bulkhead at the usual position of the temporary reserve-bunker wood bulkhead commonly fitted in all general cargo traders. This wood bulkhead was fitted, so that, if necessary, it could be readily removed to accommodate cargo. The general experience of shipowners, however, has been that it has only been removed when necessity required its renewal. There seems no good reason, therefore, why this bulkhead should not be of steel, and made water-tight, and the flotability of the vessel improved.

Saving in Time.

From three to four weeks seem to sum up the net saving in time to a builder on the initiation of standard work, but this saving can only be maintained by an adequate supply of steel material delivered at the yard in proper sequence, and a sufficiency of labour. Where there is a partial failure in these respects the initial advantage is soon lost. Given a good supply of labour and material, and provided the vessels are all of one type in one yard, the progress will be much accelerated in the case of repeat work where the scrive-board templates, plans, and steel orders may be used over again, and the men and the officials have become familiar with the details of the work.

The routine of shipbuilding practice to-day does not differ from that of pre-war times, but there is a steady increase in the preparation of work from loft moulds. In some cases tank tops, decks, bulkheads, and the flat midship plates of outside plating are prepared from moulds; and a few builders have prepared the inner strakes of outside plating right fore and aft from moulds, thereby economising in the labour required for fairing the vessel when framed. But the practice might further be extended to include casings, deck houses, hatch coamings, and shaft tunnels.

Templating.

A question frequently asked in connection with this branch of the work is, how much template work can be usefully employed? Provided there is ample floor space in the loft, it is quite possible to make moulds for 85 per cent. of the plating work, but whether all, or only a proportion, of that work can be effectively done, depends on the stowage space available in the yard at the steel racks, in the plating sheds, and for the material finished ready for erection.

Templating work may be simplified in many cases, and errors obviated, by standardising the sizes of plates and angle flanges in any one section of the work, and also the flanges of the deck beams. Confusion and mistakes arise when there is multiplicity of moulds for a part of the work, and such mistakes are not only costly in themselves, but often costly in the delay, which may be considerable, in replacing spoiled material; and while templating work can never be made foolproof, it is desirable to make it as nearly so as possible. At present in most yards the work prepared beforehand in the plating sheds is marked from complete skeleton templates made in the moulding loft, but these may be dispensed with, and the cost of making the templates reduced, by using only station battens and templates for the butt riveting, for one frame space of the landing, and for the riveting of any angle that may traverse the surface of the plate.

If templating work is to be a success it is necessary to give careful attention to the erection of the frames and beams. These should be accurately spaced, horned, plumbed, and levelled at more frequent intervals than is usual. Where inaccuracies exist, they are not uncommonly found towards the ends of the vessel, and there may for that reason be some difficulty in fitting the deck plating. A good method of surmounting that difficulty, which may also be applied to tank tops, is in the first instance to make sure that the beams at the centre line are in their true position, by applying a batten showing the expanded positions of the beams taken from the loft floor, and working from a proved beam. When this has been done the deck plates and stringer plates should be laid in position on the beams, and the centre strake bolted to the beams. Next the landing edges of the remaining strakes should be bolted together; thus bringing the beam holes in the plating in line. It only now remains to draw the beams into positione working from the centre line, observing that the bolts should fit the holes.

If it is desired to utilise templates for preparing, assembling, and finishing complete ready for erection, large sections of the structure, such as bulkheads, deck houses, &c., then the question of overhead crane-power must be considered, but so far home builders have not felt any compelling necessity to do this.

In some Dutch yards the preparation of steel work by batten and template has been perfected to a high degree, and the whole of the outside plating, some four or five plates excepted, is prepared by developing the surfaces direct from the scrive board on to the plates and using only templates giving the pitch of the rivets in the landings, frames, and overlap butts, similar to those already described. This work is divided among half-a-dozen men, one dealing with the plates having sheer only, another with the midship flat-plates, another with the bilge plates, while others confine their attention to plates having twist and sheer in the fore and after bodies. The frames must be accurate in set and girth, and punched after setting.

The advantages of this system are that, with ample space in the sheds, the plates may be prepared while the frames are in process of being set. The work may be carried on under cover, and uninterrupted by bad weather; the men become specialists at one section of the work; and as soon as a few frames and beams are erected, horned, plumbed, and levelled, the outside and deck platingmay be worked, and the frames and beams thereby faired and kept in position.

I am assured by a competent authority that excellent work has been produced by this method, and that the cost of all rimered holes in a vessel about 500 ft. in length was under £50.

I have no doubt this system has been developed and advanced by easy stages over a number of years before reaching its present efficient state, but it remains to be seen whether it will find general acceptance in this country. However, I understand a prominent builder is making the attempt to introduce it.

The American system of templating, or, at all events, the system adopted in some American yards, is to prepare moulds for every frame and floor, and practically every plate in the vessel. The vessel is first laid down on a large scale in the drawing office, as is sometimes done here, then transferred to a dressed white-pine board on the mould-loft floor full size, the frames and other markings are drawn in in pencil, and when completed the board is varnished. From this board, and other drawing-office particulars, templates are prepared for each frame and floor, giving full information regarding the pitch of rivets, and the positions of man-holes, connecting angles, &c. Moulds are made for the whole of the shell plates, bilge strake and furnace plates excepted, tank-top plates, beam girders, bulkheads, hatch coamings, and deck houses. In the preparation of this work as many as 50 to 60 men may be engaged. The frames and beams, beam girders, bulkheads, hatch coamings, and deck houses are riveted, caulked, and completed on the ground and placed in position by overhead travelling cranes. When only one vessel is to be built from a design this system does not appeal greatly as an economy, unless perhaps where a large body of the labour is only semi-skilled. But in the case of repeat work, where the moulds may be used many times over, the time and labour saved becomes at once apparent.

Multiple-punching.

Plate multiple-punching machines are now being more generally adopted by shipbuilders. They were in the first instance introduced into the yards many years ago by those who had contracts for pontoons or floating docks, and similar work, and it is in structures such as these, where the plates may be of uniform size and the rivets of constant pitch, that the multiple punch attains its highest efficiency. The machines are automatically fed, and the latest type can accommodate plates 31 ft. in length by 87 in. in width; can punch simultaneously 18 $\frac{17}{16}$-in. holes in a $\frac{3}{4}$-in. plate; six $1\frac{1}{16}$-in. holes in a $1\frac{1}{8}$-in. plate, and 12 holes in two successive strokes. Each punch head is fitted with an organ stop, so that the punches may be worked singly or in groups, without stopping the progress of the plate through the machine, and there is an arrangement by which zig-zag holes may be punched across the plate. Automatic multiple punching machines are now available for punching angles, bulb angles, channels, and Z sections, from 8 in. to 15 in. deep, and the rivet pitch may be varied from $2\frac{1}{4}$-in. centres advancing by $\frac{1}{2}$-in. to 8-in. centres. There are four punches in the machine manipulated by organ stops, and it is capable of punching two 1-in. holes in a $\frac{3}{4}$-in. plate at one stroke. These machines produce excellent work, superior in quality to the best hand work, and they reduce the cost of templates; for they are, by the various mechanical devices adopted, in reality punching machines and templates in combination. If the flat midship-plates of the outside plating, for instance, were of a uniform size, say, 31 ft. by 70 in. by $\frac{3}{4}$ in., it would be possible to pass through such a machine 100 plates per week, but if the same plates were marked from a loft template, and man-handled at the punching machine, 45 to 50 plates per week would admittedly be an excellent output.

In arranging the breadths of plating throughout a vessel, whether the plating is to be punched by the multiple machine or lifted by template from the vessel, it is desirable, with a view to economy in riveting, that the breadths of the plates should be multiples of the rivet pitches in the butts, frames, reverse frames, and frames, or as near thereto as may be possible. It not infrequently happens that the breadth of the strakes, especially the heavier ones, have been arranged with the sole object, and no doubt a desirable one, of saving weight, but if the matter were looked into a little more closely it might be found, in not a few cases, that the saving had been effected at too great a cost in riveting.

Pneumatic Tools.

Owing to the incidence of the war, and the consequent shortage in labour, the introduction of pneumatic tools for riveting, caulking, chipping, and hole-boring has of late become more general. When riveting by means of pneumatic hammers, the rivets may be held up by a jam-back holder-on, or by the ordinary holding-up hammer, or by a pneumatic riveting hammer, and occasionally the bottom shell rivets are fitted from the outside, and clenched on the inside. In that case the heads of the rivets are cone-shaped to fit the countersink in the plating, and are held up by a hydraulic ram. The American practice is to use double hammers, the inside one being slightly the more powerful. The rivets are hardened up after cooling, as in hand work, and good results are obtained by any of these methods, provided always that the surfaces are first thoroughly screwed together.

The air pressure at the accumulators is usually 100 lb., supplied by pipes of steam quality, laid in trenches, to the building berths and up to and along the decks, thence by flexible pipes leading to the tools. The wear and tear in the hammers and the drills is perhaps on the whole not more than might be expected in high-speed percussion machines, where high speed and short stroke are essential, and it is observed mainly in the valves, rivet snaps, and pistons of the drills, but hammers frequently fail through grit and small particles of the rubber tubing entering the cylinders and choking the air holes. The wastage in the flexible piping is considerable, and leakage at the couplings and the accumulation of water in the piping, especially in severe weather, calls for special attention.

Electric drills are now being introduced to shipyards, and where sufficient power is already at hand, they may be readily installed; but, on the other hand, they are heavier than pneumatic tools, more costly to repair, and there is always a danger of accident arising from careless handling or uncovered wires.

The quality and quantity of the work produced by pneumatic caulking, chipping, and boring tools is on the whole equal to expectation, and while the output from the riveting tools in the average is as good as hand work, better results should, and probably will, be attained, when more men have been trained to their use; but, on the other hand, and all-important at this time, their introduction effects a considerable economy in man-power.

Scrap Material.

The lack of transport facilities, and shortage of man-power consequent on the war suggests a minor economy in shipbuilding which might be effected. This has reference to the manner of dealing with scrap material. At present, as is well known, the plates are delivered to the shipyard more or less in the rough, but it appears to me that the parts of the structure in which the lightening holes occur, such as those in connection with double bottoms, might be conveniently dealt with at the steel works. It may be instanced that in the midship floor plate of a modern cargo vessel of average size there is about 23 per cent. of scrap, and in an intercostal plate, and in a frame bracket, about 20 per cent. and 15 per cent. of scrap respectively. Now, it seems reasonable that instead of conveying this material to the yard and back again to the steel works, the plates might be sheared to the required shapes, and the lightening holes punched in them at the steel works before despatch. The gain here is obvious, and I consider there is room for co-operation between the steelmaker and the shipbuilder on this matter.

Modified Lines.

The war has had some influence in the design both of form and structure of vessels, but it is, of course, impossible to do more than make passing reference to the subject in this paper. The most striking departure in design of form is probably that which aims at substituting straight lines for the curved ones of the normal vessels. This design is claimed to lead to economies in construction. Another design has been proposed by Mr. Isherwood. In this case the vessel

has a long parallel midship body arranged to make the work easily adaptable to the templating system, so that men trained to structural bridge work can deal with it, thus increasing the man-power available for shipbuilding, so important at the present time. This is a departure from shipbuilding practice entirely due to the effects of the war, but it may ultimately have an important influence on the output of standardised vessels of all types after the war is over.

With regard to modifications in structural design, there have been several departures, but a notable one is that of Mr. Miller's patent ship. Here the framing is a combination of the transverse and longitudinal systems, the lower and upper parts being formed on the latter, and the sides on the former, and there is, therefore, probably a saving in the cost of assembling and erecting. The framing of the top and bottom members, being arranged longitudinally, is available to resist the cross-breaking stresses, and on the whole this disposition of the material probably will result in a saving in weight. The side frames for a considerable portion of the middle length can be worked cold, and the open framing of the bottom gives easy access to all parts, and thus facilitates the work of construction. Much care and attention has been devoted to arranging the material, so that it may be worked at the multiple-punching machine.

Only a word can be given to the ferro-concrete vessel—a system of construction which is in the experimental stage, as applied to sea-going vessels. Lloyd's Register is to class a number of sea-going tugs and barges to be built in various ports of the country. During construction these vessels will doubtless provide many problems to the builders for solution, and when completed will constitute something unique in naval architecture.

THE CLYDE AND SHIPPING.

Development after the War.

In response to a request by the Port and Transit Executive Committee, the Clyde Navigation Trust have prepared a statement relating to the accommodation and facilities for shipping which exist at Glasgow, and as to the capacity of the port for accommodating vessels after the war. In reviewing the trade of recent years the Trustees state that the greatest tonnage of vessels using the port was for the year ending June, 1914, when 13,821,425 tons of shipping were dealt with. The greatest tonnage of goods was in 1913, when the amount handled was 10,418,324 tons. The Trustees state that they are confident that the resources of the port will after the war be equal to the demands likely to be placed upon them.

During the last three and a half years the harbour of Glasgow, it is stated, has not been congested, as is the case at some other ports, and vessels have not suffered any delay beyond what may have been caused by labour troubles of a temporary nature. The Trustees exact heavy penalty rents on goods not removed from the quay within the time allowed, and this conduces to avoid congestion. Last year the penalty rents amounted to £6,500. With regard to storage, the Trustees have already full Parliamentary powers to provide storage accommodation and to equip the same with plant, to act as storekeeper and for goods stored to issue certificates binding upon them. The banks accept such certificates in security against advances in the case of grain and timber in the Trustees' custody. Under these powers they have erected Meadowside Granary, which is capable of storing 31,000 tons at one time, and can be much enlarged on space reserved for that purpose. They have also provided timber storage yards. In addition to the granary there is storage accommodation for 30,000 to 40,000 tons of grain in bags in sheds at Prince's Dock, Shieldhall and Merklands, and if more room is necessary for grain or general produce available ground at Merklands or Shieldhall can be assigned for the purpose. Grain and timber are the principal commodities for which storage is required, and the Trustees point out that there is a large number of extensive private stores in the vicinity of the harbour in which grain and general imports are stored. These, with such additions as may be made, will probably be sufficient for the requirements of the port after the war. With regard to timber, there will be no difficulty in storing in uncovered fenced spaces whatever quantities may come, and temporary sheds can be quickly erected for timber requiring cover. The Trustees are of opinion that accommodation at the harbour for other classes of imported goods will not be in demand as the traffic is for most part distributed from the quays. Goods for export do not come forward until they can be laid down for shipment, and special facilities are given at the quays for temporary storage.

The Trustees had sanctioned prior to the war certain improvements on the cranes, but the work of carrying out the extensions had to be deferred. Progress has, however, been made in the further use of ore-grabs, there being now on the quays 31 grabs which are considered sufficient for all requirements. The newer parts of the harbour have all the railway connections which it is possible to make use of, with the exception of Meadowside Granary, where there is no connection with the North British Railway. This is undoubtedly a hindrance to the efficient working of the Granary. The adjoining quays also suffer from having no direct connection with the North British system. The Trustees submit that in the public interest all railways should have access to public docks. The dredging of the river is also receiving attention. The depth aimed at from the western portion of the harbour to the seaward end of the Trustees' jurisdiction is 25 ft. at low water. This has not yet been uniformly attained, but as it is, vessels drawing fully 30 ft. can leave the harbour about two hours before high water. Last month, for instance, a steamer of 18,585 tons gross and 625 ft. in length left Greenock for Glasgow two and a half hours before high water at Glasgow and was berthed there at high water.

Prospective Developments.

With regard to increasing the quayage accommodation of the port and the facilities, the Trustees have Parliamentary powers, under their Acts of 1911 and 1914, for extensions on the lands of Shieldhall, Shiels, and Elderslie, on an area of about 400 acres, of which they are the proprietors. The authorised scheme embraces a graving dock at Renfrew to accommodate the largest class of vessels. The dimensions will be about 1,020 ft. long, with a width at entrance of 120 ft. or more, as may be found necessary, and 36 ft. depth of water on sill. The scheme includes an outer basin forming an approach to the graving dock, and having quays which can be used for commercial or fitting-out berths, and an inner basin, parallel with the graving dock, for similar purposes, the combined quayage there extending to about 1,650 lineal yards. It is the intention of the Trustees to proceed first, as soon as circumstances will permit, with the authorised work at the Shieldhall or eastern end, which is fully a mile nearer the city, and more convenient for the general cargoes of large liners. While the complete scheme there comprises five basins in *echelon* form, opening directly on the river, and giving about 8,200 yards of quayage, the two easternmost basins only have Parliamentary sanction.

When circumstances permit of soldiers being returned from the Front, the Trustees are of opinion that special attention should be directed to sending back, among the first drafts, men who were employed at the docks. If this were done, it would put dock authorities in the position of being better able to deal with the rush of after-war business anticipated. It may be pointed out that many of the men now employed in labour battalions in France and elsewhere, and formerly classed as casual workers, may now be inclined to become regular dock workers. If this could be attained it would improve the morale of the usual dock labourer, and lead to better and more steady work all round. The benefit of discipline has been proved in the case of the Transport Workers' Battalions, from which men are drawn to assist in the loading and discharging of vessels in Glasgow Harbour. These men have done excellent work, and their example has had a good effect on the ordinary dock labourer.

GENERAL NEWS SECTION.

PERSONAL.

Sir Duncan Carmichael has become a partner in the firm of Gray, Dawes & Co., shipowners, of 122, Leadenhall Street, E.C.3.

Mr. W. H. Dugdale, shipbuilder, has been re-elected President of the Sunderland Chamber of Commerce, and Mr. W. Sewell vice-president.

An official announcement states that Don Francisco R. Villavicencio has been appointed Consul to the Mexican Government in London.

Mr. J. H. Estill, formerly Commercial Superintendent of the Port of London Authority, has re-entered the service of the Authority as Commercial Manager and took up his duties on April 15.

One of the oldest of the Tyne steam-tug owners has been removed by the death of Mr. Joseph Crosthwaite, of North Shields, at the age of 80 years. He was well known to the local shipping community.

A Reuter message from Paris states that Monsieur S. Derville and Monsieur C. Verge have been elected vice-presidents of the Suez Canal Company in place of Monsieur S. Charles-Roux and Voisin Bey, deceased.

Mr. Howard Houlder, Chairman of Howard Houlder & Partners, Ltd., ship and insurance brokers, and of Houlder, Middleton & Co., Ltd., shipowners, of 17, St. Helens Place, E.C.3, has been elected an underwriting member of Lloyd's.

Mr. Frank S. Coble, who was well known on Newcastle Quayside, died on April 12, at Merley Croft, Morpeth. He was articled with Watts, Watts & Co., Ltd., shipowners, and afterwards represented E. W. Zielli & Co., insurance brokers.

Sir John Gunn, late of the firm of Sir John Gunn & Co., Ltd., shipowners, Cardiff, and other companies, who died on January 20 last at the age of 81 years, left estate valued at £131,827, including personalty of the net value of £99,159.

Commander S. D. Vale, Principal Port Officer of Burma, has retired after 31 years' Government service. He had been in his late position since 1913. His successor is Commander E. J. C. Hordern, R.I.M., of Kidderpore Docks, Calcutta.

Mr. John H. Thomas, for several years the Boston manager of the International Mercantile Marine, and who became Vice-president of the company on July 1, 1917, is the new Director of Shipping at the Port of New York for the United States Shipping Board. The duties of the office include the loading and handling of all ships operated by the Shipping Board or the Army Transport Service. Mr. Thomas will have supervision as well over the local terminal facilities used by the Shipping Board or the Army Transport.

The King has approved of the award of decorations to the undermentioned officers of the British mercantile marine, in recognition of zeal and devotion to duty shown in carrying on the trade of the country during the war. The Distinguished Service Order to Captain E. Evans (Lieutenant, R.N.R.), and the Distinguished Service Cross to Captain J. R. Godfrey, Captain J. Montador, Captain O. Stoker-Johnson, Captain E. B. Watters, Captain E. Vooght, Chief Officer H. P. Barker, Chief Officer R. Hodgson, Chief Engineer A. Cumming, Chief Engineer W. A. Johnstone, Chief Engineer W. S. Martin, Chief Engineer E. R. Wright.

Mr. James Robinson, Secretary of the Tyne Pilotage Board, and for many years secretary of the Tyne Lifeboat Institution, died at his residence at Tynemouth at the age of 67 years. He was a son of the late Mr. Thomas Robinson, shipowner, of North Shields.

The Board of Trade have received through the Foreign Office a binocular glass awarded by the President of the United States to Mr. Robert Harrod, skipper of the trawler *Faithful*, of Plymouth, in recognition of his services to a shipwrecked American crew in May, 1917.

At the Naval Transport Offices, Liverpool, on Monday, Mr. W. A. Evans, a local marine engineer, received the Croix de Guerre with Etoile de Bronze, awarded by the French Ministry of Marine in recognition of services rendered during an engagement with a submarine while chief engineer of the French steamer *Loire*.

The death has taken place, in action on the Western Front, of Captain Thomas James Pritchard, M.C., who when war broke out was in the publicity department of the White Star Line. Captain Pritchard's brief military career was full of distinction. In June last he was awarded the Military Cross, and shortly afterwards obtained his second star. He was gazetted Captain in October, 1917.

Captain H. Franklin Thomas has been appointed shipping adviser to the principal naval transport officer for South Wales, Commodore J. P. de Montmorency, C.M.G. Captain Thomas, who is well known in Cardiff Coal and Shipping Exchange circles, is the eldest son of Mr. E. Franklin Thomas, and is a partner in the firm of J. E. Thomas, Ltd., colliery agents and coal exporters, of Mountstuart Square, Cardiff.

The funeral took place at Waterloo, Liverpool, on Thursday, of Captain Alfred W. Amery, whose death occurred suddenly while embarking on one of His Majesty's ships in the South of England on the previous Friday. The deceased gentleman was well known in Liverpool shipping circles, having been in command of many steamers of the Lamport and Holt Line during the past 28 years. He was elected only a few weeks ago a member of the Executive Council of the Mercantile Marine Service Association.

The death occurred, on April 5, at his residence, 8, Hillington Park Circus, Cardonald, of Mr. William Harris, H.M. Assistant Inspector of Carriages for Glasgow and late principal officer of the Board of Trade for Glasgow and the West of Scotland. Mr. Harris, who was a native of Arbroath, was 68 years of age. He retired from his position on the Board of Trade in June, 1914, after 33 years' service. He was trained as a marine engineer in Arbroath. Afterwards he served in the works of J. & G. Thomson, Clydebank; Robert Napier & Co., Govan; and D. & W. Henderson & Co., Glasgow. Later he was chief engineer of the Anchor Line steamer *Ethiopia*. He entered the service of the Board of Trade in March, 1881, and served at Hull, Leith, Liverpool, and for ten years at Glasgow.

The death occurred on April 11, at Aigburth, Liverpool, after a brief illness, of Mr. Lewis C. Shepley, victualling superintendent of the White Star, Dominion and American Lines. The deceased gentleman joined the Dominion Line in March, 1882, and when the line was taken over by Richards, Mills & Co., he was appointed victualling superintendent, and on the amalgamation of the Leyland, American, and Dominion Lines he was appointed to the victualling control of the three lines. On the retirement of the late Mr. C. J. Wahlers, victualling superintendent of the White Star Line, Mr. Shepley was appointed joint victualling superintendent of the White Star, Dominion, and American Lines, in conjunction with Mr. H. I. Thorpe, and on that gentleman's lamented death in August, 1911, he was given the supreme control of the department in Liverpool.

FROM OUR CORRESPONDENTS.

CLYDE DISTRICT.

(From Our Own Correspondent.)

Shipbuilding Firm and Railway Extension.—At an inquiry into a railway extension scheme promoted by the Glasgow and South-Western Railway Company, held in Glasgow last week, the Ayrshire Dockyard Company appeared as the principal objectors. The railway company are promoting a Provisional Order for the widening of their line to Ayr, and it was stated that the necessary ground had been or was being acquired, with the exception of a small portion at Irvine regarding which they had encountered the opposition of the Dockyard Company. The actual extent of the land they sought power to acquire was ·39 of an acre. It was stated on behalf of the shipbuilders that the effect of the railway company's operations would be seriously to handicap the important work on which the Dockyard Company were engaged. They held that if there was another way at the command of the railway company by acquiring ground on the east instead of the west side it was their duty to adopt that course. At the close of the evidence the Commissioners found the preamble of the Order proved, subject to the adjustment of clauses. They expressed approval of the restriction of the amount of land to be acquired by the railway company from the Dockyard Company to ·39 of an acre.

Glasgow Harbour Rates.—The rates and dues on goods and shipping at Glasgow Harbour have been increased on several occasions since the war broke out. A further advance has just been sanctioned by an Order of the Board of Trade, issued under the Defence of the Realm Regulations. In order to meet their financial requirements the Trustees are now empowered to raise their charges as follows:—(1) The rates on vessels, which were raised in June last by 33⅓ per cent., to be increased up to 50 per cent. above the statutory maxima; (2) The rates on goods and certain items of the crane schedule, which before any of the increases since 1914 were at their statutory maxima, and were raised in June, 1917, by 33⅓ per cent., to be increased up to 50 per cent. above the statutory maxima; (3) The rates on these goods and on the items in the schedule of rates levied for graving docks and for cranes and hoists, the rates for capstans and the tolls for tramways, all of which have been increased under the statutes and the Board of Trade Order of June last, to be increased by 16⅔ per cent. above the rates levied, but not exceeding 50 per cent. above the statutory maxima; (4) The rates, rents, and charges for Meadowside granary and the timber yards to be increased by 16⅔ per cent. above the rates levied; (5) The rates for water weighing, and planks to be increased by 50 per cent. above the rates levied. The foregoing increased scale of rents, rates and charges came into operation on Monday last.

Shipwrights and Dilution of Labour.—A good deal of interest has been aroused locally in a complaint made by a shipbuilding firm that urgent war work has been delayed owing to the refusal of shipwrights to allow ship joiners to do work usually done by shipwrights. The ship in question was being refitted by D. & W. Henderson & Co. for carrying wounded and convalescent soldiers, and the firm have stated that they did their best to obtain shipwrights, but were unable to do so, and when they proposed to employ joiners on the work the shipwrights objected and consequently the vessel was held up. When the matter was made public an explanatory statement was immediately issued by Mr. Thomas D. Hill, the Clyde technical adviser of the Ship-constructors and Shipwrights' Association, denying the allegation that the shipwrights were responsible for holding up the work. He states that under the dilution agreement the shipwrights do not object to ship joiners doing shipwrights' work, but there must also be a number of shipwrights on the job. In other words the job must be given first of all to shipwrights and then as many ship joiners as are necessary may be brought in under the dilution scheme. Mr. Hill says that the shipwrights were quite willing that the greater part of the work should be executed by joiners, provided the terms of the dilution agreement were complied with by the inclusion of a number of shipwrights, and that this view was stated to the firm at the time. He therefore repudiates the suggestion that it was the intention of the shipwright members to see any work delayed where the interests of the fighting forces were involved.

SCOTTISH EAST COAST DISTRICT.

(From Our Own Correspondent.)

Leith Harbour Rates.—Leith Dock Commission have at present under consideration a proposal for a further increase in the rates chargeable on goods and vessels at the port. In the event of a general advance being decided on, it is proposed to bring the new scale of charges into operation at Whit Sunday next. At a meeting of the Commissioners held last week the matter was remitted to the Committee on rates for report.

Dundee and Shipbuilding Output.—A resolution was recently sent to the Premier by the shipyard workers in Dundee promising to speed up the production of ships and engines in view of the national necessity at present. In response to this message the following telegram has been received from the Premier: "Your telegram pledging your whole efforts to the service of the nation at this critical hour is very welcome. The supply of ships is as important as the supply of men for the Army, and those who build them are doing not only national work, they are keeping open the sources of world supply for those who are fighting the battle for justice and right."

The Burntisland Shipyard.—It has now been announced that the joint managing directors of the Burntisland Shipbuilding Company, which is in process of formation, will be Mr. A. L. Ayre, shipbuilder, Glasgow, and Mr. Wilfrid Ayre, shipbuilder, Aberdeen, both of whom will join the Board of Directors after the allotment of the share capital. In the abridged prospectus, which has been published, it is stated that the company has been formed to acquire and carry out a scheme for erecting and operating a shipbuilding yard for the Forth area on lines which will secure rapid and economical methods of manufacture, and immediate productivity in the construction of ships. Orders may now be taken from private owners for delivery of vessels as soon after the conclusion of the war as the British Government permits. Meantime, business to the full capacity of the company may be done for the Admiralty.

NORTH-EAST COAST DISTRICT.

(From Our Own Correspondent.)

Trade After the War.—At its last meeting the Sunderland Chamber of Commerce discussed the question of Government control of trade after the war, and while many of the members were in favour of limiting control to six months after the termination of the conflict, others believed it would be impossible to do this, because of the rush there would be for material, and the obligations of the Government to neutrals and others, and, therefore, it was suggested that, in addition to the period mentioned, the words "if practicable" be added to the recommendation. This was agreed to. Mr. W. H. Dugdale was re-elected president of the Chamber for the ensuing year.

Steelworkers' Wages at Consett.—The accountant's ascertainment of the average net selling prices of steel plates at Consett, including the subsidy for the months of December, January and February, showed that the wages to be paid to millmen during April, May and June will be 75 per cent. above the standard, or, in other words, 7½ per cent. above the wages prevailing during the previous quarter. The 7½ per cent., with the 5 per cent. given in the preceding ascertainment, makes 12½ per cent. advance this year, the whole of the increase being due to the inclusion of a subsidy. At Consett, the wages of the steelworkers have risen 60 per cent. since the beginning of the war, although from June to December, 1917, the wages remained at 62½ per cent. above the standard.

Shipyard Labour.—A large number of men are now being sent to Tyneside to augment the labour in the shipyards, and a topic that is now being discussed is: Can any improvement be made in the utilisation of the labour available? In the opinion of a Tyneside labour leader, two shifts per day in the shipyards instead of one might be tried with advantage. It is suggested that big masses of men in a yard at one time leads to congestion, and that if there were two shifts there would be more elbow room, as it were, and quicker output would result. Continuous overtime, it is urged, tells on the physical capacity of the workers, whereas, if eight-hour shifts were introduced, and week-end work entirely abolished, the men would come fresh to their labours and would go right through with them for the allotted hours with much greater vigour than now obtains in the ordinary 54-hour week. Two shifts, it is believed,

by some people, would mean practically continuous production, and this is what is wanted at this time. The comparative rapidity of shipbuilding in Japan is pointed to as testimony to the efficacy of double shifts.

Accelerating Shipbuilding.—The new Committees which have been formed to help in accelerating shipbuilding are expected to accomplish useful work for the reason that they are composed of men who know all about the business. Lord Pirrie, the Controller of Merchant Shipbuilding, has had interviews with leading employers and trade union officials, and on Tyneside it is believed that the scheme for increasing output has been conceived on sound lines, and that it only needs the spirit of mutual co-operation to make it a success. There is a national joint committee of employers and trade union representatives, and supplementing this are local joint committees and joint shipyard committees. Through these channels careful estimates will be kept of shipbuilding output, and there will be intelligent attempts made by those who thoroughly know the ins and outs of every phase of the industry to remove every hindrance to accelerated production. The appointment of more new committees is not calculated to arouse any particular enthusiasm, but in this matter of merchant shipbuilding it is encouraging to know that at last the masters and men are themselves to grapple with and endeavour to solve the problems of output as they arise with a minimum of outside interference of an official kind.

The "Wellesley" Training Ship.—Many a poor boy in the course of the last half-century has had reason to be grateful to the training he received on board the training ship *Wellesley*, at North Shields. The ship was destroyed by fire a few years ago, but the institution still continues its beneficent work, being now carried on in a large building at Tynemouth. The records of the *Wellesley* furnish many illustrations of the gratitude of "old boys," but none more touching, perhaps, than a long letter lately received from Mr. William Campbell, a leading stevedore and ship chandler, in Iquique, Chile, who was trained as a lad on the vessel from the years 1884 to 1888, and in thankfulness for the instruction and help then given to him, he has presented £20 to the committee to provide a gold medal and a silver medal as rewards for the best two boys of the year, and also £100 for investment, the interest to be given each year to the boy winning the gold medal. In his letter, Mr. Campbell says: "I for ever thank the officers of the old *Wellesley*. The training I received made a man of me. I often recall the happy days I spent on board the old ship. I could live there for the rest of my life." Mr. Campbell has been settled in Chile for 30 years, and he sent his gifts to the *Wellesley*, together with a long letter to the Commander, through Capt. C. Vickers, of the steamer *Trident*, owned by Hall Brothers, of Newcastle.

THE MERSEY DISTRICT.

(From Our Own Correspondent.)

Passage of Queen's Channel.—New regulations brought into force by the Admiralty provide that no vessel is to pass through the Queen's Channel, one of the main approaches to the port of Liverpool, with less than three feet of water under the deepest part of the vessel's keel.

Appeal to Dock Workers.—Mr. James Sexton, the General Secretary of the National Union of Dock Labourers, has issued an urgent appeal to all members of the Union in Liverpool and other parts, to strain every nerve, and to make every effort to forward the work of transport. He has done this on the authority of his Executive, and he says there must be no cessation of work under any circumstances. The immediate transport of men, munitions and material for the fighting line, together with food for the fighting men and our civil population must be the dockers' contribution in the present crisis, and it must be given in no unstinting manner if the country is to be saved from the fate of Belgium, Serbia, Roumania and Russia. There is a true patriotic ring in this appeal which does credit to Mr. Sexton and his Executive Committee, and it is based on actual facts which have been placed before them relative to the position on the Western battle front.

Tonnage for Cotton.—The Ministry of Shipping notify the Liverpool Cotton Association that it has been decided provisionally to allocate 25,000 tons cargo space for the shipment of cotton from the United States during May. It is pointed out, however, that almost the whole of this freight space, equivalent to about 105,000 bales, will be required to move the 92,250 bales still awaiting shipment on the February allotment. As space has afterwards to be found for 95,800 bales, not yet cleared, on freight contracts made before December 13, the Liverpool Cotton Association regret that it will be some time before any fresh allotment can be made.

In this connection, and in order to ensure larger supplies in the future, important concessions have been made for the denser baling of cotton. Cotton bales are to be compressed to a density of 28 lb. to the cubic foot instead of 22 lb. as at present, and this it is calculated will assure an additional 20 per cent. of cotton without any increase in the space allocated to cotton shipments. To cover the additional cost of denser baling, the Ministry of Shipping has granted a concession of 50 points per 100 lb. in the ocean freight rate.

SOUTH WALES DISTRICT.

(From Our Own Correspondent.)

Dock Pilots' Wages.—The executive committee of the Cardiff and Bristol Channel Shipowners' Association, at a meeting on Thursday last, agreed to an application made on behalf of the National Amalgamated Labourers' Union for an increase of 12½ per cent. in the wages of dock pilots at Cardiff, thus making the rate 50 per cent. above the pre-war level.

Chartering Commission.—At a meeting of the Cardiff Institute of Shipbrokers, the chairman, Mr. S. W. Hansen, referred to the question of agency fees. He said most of the boats were now directed, and this was a substantial gain to brokers in the Bristol Channel. The Institute were now working hard in connection with the agency scale of fees, and this was now under the consideration of Sir Joseph Maclay. The scale put forward was not considered unreasonable. A letter had been sent to the Shipping Controller with a view of ensuring that the Admiralty agents (William Mathwin & Co.) should not charge a lower scale than that of the Institute for business other than that of the Admiralty.

Proposed Shipbrokers' Pool.—The question of establishing a shipbrokers' pool for the purpose of rendering assistance to shipbrokers whose business had suffered during the war, was brought up at a meeting of Cardiff shipbrokers. Mr. S. W. Hansen said Mr. Jebb, chairman of the London Institute of Shipbrokers, had worked hard to bring about the pool. The names of the members of the Cardiff Institute had been sent to London, and if they wished to participate in this pool there was nothing to prevent it. He would like to point out that the conditions for admission were somewhat severe; any broker applying must be prepared to produce his books. The pool was under the control of the London Institute, and the latter would in all probability appoint a committee to investigate the claim of every applicant for admission to the pool. The details of their business would have to be put before this committee, so that the London Institute might be satisfied as to the *bona-fides* of the claim. It was eventually decided to communicate with the officials of the London Institute, and inquire if it would not be sufficient evidence of the *bona-fides* of an applicant if the auditors of the Cardiff Institute examined the books of the applicant.

Shipment of Coal and Coke to Norway.—The following notice, relating to licences for shipment of coal and/or coke to Norway, has been posted on the Cardiff Coal and Shipping Exchange:—"Coal exporters are informed that in licensing coal to Norway, the general practice hitherto has been to grant provisional licences only, and to defer the issue of the actual licence until suitable tonnage has been nominated to the War Trade Department by the shipper. It has now been decided, with the approval of the War Trade Department, to abandon this practice in the case of Norway, and to grant general licences valid for one month by approved Norwegian or British steamers. It will, accordingly, no longer be necessary for shippers to submit the names of vessels to the War Trade Department, and will suffice for the shipper to obtain the approval of the local collector of Customs to shipment being effected by the vessel or vessels proposed. This change should be a facility to exporters, and will, no doubt, be appreciated by the firms concerned. When coal and/or coke is not shipped within the period of validity of the licence, applications for extensions will be considered upon application, but it may not always be possible, owing to changes in the circumstances of the coal supply, to renew the licence for the same kind of coal as that originally allowed."

Bristol Channel Institute of Shipbrokers (Incorporated).—Mr. S. W. Hansen, presiding at an extraordinary general meeting of the Cardiff Institute of Shipbrokers, brought up the question of

changing the name of the Institute. He said that they had met with so much success with the outlying ports that the latter had expressed a desire to join forces. There was some talk of forming separate Institutes, but the Committee took the view that if there were two or three Institutes in the Bristol Channel they would not be able to achieve the same object as if they worked under one Institute. Swansea and Newport had approached the Cardiff Institute, but they felt that the present name excluded them from membership. Bristol was perfectly willing to come into the Association, all the brokers being prepared to join with the exception of one firm. If other ports were coming in, it would be only fair that they should have representation on the committee. The latter had no power to elect such representatives, but they had the power to co-opt a member, and until the annual meeting, that was how they should get over the difficulty. The membership of the Institute was now nearly 250. The proposal to change the name to that of the Bristol Channel Institute of Shipbrokers (Incorporated) was adopted, and in order to place the Institute in a proper legal position this resolution will have to be confirmed at an extraordinary general meeting, which has been called for May 24.

BELFAST SHIPBUILDING AND SHIPPING.

(From Our Own Correspondent.)

The New Dublin Company.—At the last meeting of the Dublin Port and Docks Board it was announced that the new shipbuilding company which was about to begin operations was a private one, consisting of Bailey & Gibson, with a capital of £150,000, of which £50,000 was to be paid up. The matter of the lease and an application from the firm to be relieved of rent for the past year has been referred to the Committee of the Board which has charge of the matter.

Belfast Harbour Finances.—The annual report of the auditors to the Belfast Harbour Board presented last week states that the total receipts on account of revenue amounted to £205,028, and the expenditure, including depreciation and amount set aside for sinking fund, to £195,169, leaving a surplus on the year's working of £9,858, to be added to the unappropriated receipts account. The auditors state that, but for the exceptional receipts therein for rates and charges on Goverment vessels and increases of rates during the year, there would have been a considerable deficiency.

Shipbuilding Progress.—There is little that is new to report from the Belfast yards, the output from which continues to be steady, launches taking place regularly. With no acute labour trouble at the moment and a long spell of reasonably good weather, work has gone on without interruption. The flag day organised by the staffs of Harland & Wolff's and Workman, Clark & Co., resulted in over £1,000 being collected in the streets. A football match between teams representing these firms realised over £700, over £1,000 in subscriptions has been obtained, and the biggest sum of all it is hoped will be realised from the forthcoming ballot.

THE FREIGHT MARKETS.

(From Our Own Correspondents.)

London.—All classes of tonnage are in request at high rates, though the amount of chartering business going through on the Baltic Exchange is small. Neutral shipping is able to command big figures. From the River Plate to the United Kingdom rates remain at 200s. to the United Kingdom and 205s. to France. Active conditions prevail at the North Atlantic seaboard ports of the United States, though the value of tonnage on net form of charter is not so high. Round about 210s. would be paid to the United Kingdom and 240s. to France. For Gulf loading the usual 30s. extra would be conceded. For heavy grain the current figures are 50s. from the Northern Range to the United Kingdom, 57s. 6d. to France, 75s. to French Atlantic destinations, and up to 80s. to West Italy. There is a firm demand for tonnage to carry coal cargoes from Virginia to the River Plate at 80s., while to Brazil 84s. can be had. For sugar, Cuba to France, 305s. is obtainable. Eastern rates remain firm and without change at 250s. on scale basis from Karachi to the United Kingdom, 275s. on d.w. from Bombay to the United Kingdom, and 400s. to the Mediterranean, and 550s. for kernels from the Madras Coast to Marseilles. The rice ports of Saigon and Burmah are very firm at 500s. to the United Kingdom or France. Salt cargoes could be worked at 90s. from Torrevieja to Chittagong. From Australia inquiries are circulating for tonnage on the basis of 110s. to South Africa, or 130s. to France. The Mediterranean section of the market shows no change in rates and fixtures are being made at the current figures of 45s. Huelva to the Mersey, 60s. to the Eastern Counties, United Kingdom, and 55s. to the Bristol Channel, 50s. Bougie to the Clyde, and 65s. Tunis to the same destination, 80 fr. Sfax to Bordeaux or 70s. to Bristol Channel, and 50s. Bilbao to Boulogne. Bay business is indicated by fixtures at 20s. Bayonne, and 17s. Bordeaux to Bristol Channel.

Glasgow.—The market continues very quiet, and little business has been transacted during the week. This is, of course, largely due to the scarcity of tonnage, but it may also be traceable in some measure to the uncertainty which prevails with regard to the action which may be taken by the Government in view of the events which have recently been happening in France. Among the fixtures reported were:—Bordeaux to Bristol Channel, 17s. prompt; Glasgow to Barcelona, 400s.; and steamer fixed on time charter, States and West Indies, 35s.; one round trip.

Newcastle-upon-Tyne.—The coal trade continues as active as ever and very large shipments of coal and coke are being made on official account. There is an abundant supply of requisitioned tonnage, and not even the fact that, at the time of writing, stormy weather off the coast is delaying the arrival of expected vessels is sufficient to embarrass the collieries, so large is the supply of steamers already waiting turns to load. It is as well that the inquiry on Government and Allied account is so good, for the trade has little to hope for at present from neutral customers, because, although any amount of business for neutral destinations is on offer, the supply of neutral boats shows no improvement, and, nowadays, goods for neutral destinations must be carried in neutral bottoms; therefore, no tonnage, no goods. A few fixtures have been arranged during the week, mainly for Scandinavian destinations. Thus, Christiania has been twice done at 150 kr., Drontheim once at 140 kr., and Gothenburg once at 160 kr., rates which all show a steady market for these directions. Elsewhere, Gibraltar has been twice fixed for at 100s., and Treport once at the scheduled rate of coke. These represent the sum total of business reported in the open market. There is a brisk inquiry for tonnage for all neutral ports and the Spanish and upper Mediterranean tone is especially strong. There is no noteworthy alteration in quotations this week. Coasting business is still absolutely neglected.

Liverpool.—This market continues quiet as a result of so much of the world's tonnage being now controlled. There is no scarcity of inquiries, however, but little fixing can be done while boats are so difficult to get. Rates are well maintained, and any free tonnage could get profitable employment in any trade. Time chartering is obviously subject to the same conditions, and in this department also handy neutral boats could get up to 50s. in the general trades. Homeward freights generally maintain their high level, though the drop in the war risk insurance has brought net form rates from North America down to 210s. to United Kingdom, and 240s. to France, though 360s. is still quoted to Italy, with 30s. extra in each case for Gulf loading. Grain still quotes 50s. from Range ports to United Kingdom, and 75s. to West Italy, and cotton is quiet since the allotment of 25,000 tons carrying space for May will do little more than clear the cotton shipments in arrear, and already contracted for export. Eastern markets still call for tonnage at firm rates. Saigon is reported offering very tempting rates to Rotterdam, and 500s. is the basis at the rice ports to United Kingdom. India quotes 500s. to 550s. Madras Coast to Marseilles, 440s. Bombay to Italy on d.w. and 275s. Karachi to United Kingdom on scale. River Plate would pay for neutral shipping 200s. to United Kingdom, and 205s. to France. Mediterranean imports continue to absorb tonnage freely at firm rates.

Cardiff and Swansea.—Actual business on the market continues on quiet lines, owing to the lack of free tonnage. On the other hand, the authorities are well situated in this respect, for the last couple of weeks more carrying space has been available than has been the case for some considerable time. The inquiry continues good, and the tone of the market is fairly firm, with no variation in the rates quoted. For neutral directions inquiries are still in evidence; Barcelona is quoted at 400s., and Bilbao at 300s. Business for the French ports has been rather quiet, the fixtures disclosed were:—Havre, 45s. 9d. (neutral); Honfleur, 48s. (neutral); Rouen, 25s. 6d. (Allied); and St. Nazaire, 61s. 6d. (neutral). In other directions, Huelva was done at 420s., and Barcelona or Valencia at 400s., also

a Nature was reported for Dakar at 85s. On the Swansea market nothing new can be recorded. An active demand prevails for tonnage, and as a consequence rates are firmly maintained. Practically the whole of the business done has been for the limitation ports at the scheduled quotations.

THE COAL MARKETS.

(From Our Own Correspondent.)

The coal trade throughout the country is showing a maximum of activity which had not previously been in evidence for many months. The improvement in business is especially observable at the coal exporting ports where the demand for the first time for a long period shows signs of overrunning the supply. Shipping movements are better and the supply of railway wagons has materially improved, so that a considerable diminution has been made in accumulated stocks. Not only is the better position of trade maintained on the North-East coast, but the South Wales coal trade has become quite brisk, and for the first time for some months the demand has exceeded the supply. The Scottish coal trade continues quite brisk, while in the Midlands of England increasing pressure is being put on the pits to obtain supplies.

The bunker coal trade has also firmed up pretty generally. On the North-East coast there is no large demand by private operators, but the official requirements are considerable, and in addition bunker fuel is being used for other purposes. Prices range from 24s. to 27s. 6d., while special bunkers for export are quoted at 30s., but command more than that figure. The bunker coal position also shows improvement at the South Wales ports, and prices are fairly firm at 20s. 6d. to 24s.

On the North-East coast the amount of tonnage which has recently come to hand is quite considerable, and loading operations have gone on unchecked, with the result that stocks have been very materially reduced and the collieries are now obliged to work at pressure to keep pace with current requirements of consumers. Inquiries from neutral countries are in circulation, but the home demand is more than sufficient for the time being to absorb the full production of the pits. All classes of best steam coal are fully sold well ahead and even second quality steams are moving briskly. Small steams are, however, not in demand, and the large stocks on hand have not been depleted, but rather tend to increase. Durham gas coal and household fuel are readily absorbed and nuts are unobtainable.

Approximate quotations are for best Blyth steams, 30s. to 32s. 6d., and smalls, 18s. 6d. to 20s. 6d.; Tyne primes, 29s. 6d. to 32s., and smalls, 25s. to 27s. 6d.; second steams, 25s. to 29s. 6d., and smalls, 18s. 6d. to 20s. 6d.; unscreened steams, 24s. to 25s.; North Northumberland steams, 28s., and smalls, 20s.; smithies, 25s. to 30s.; nuts, 32s. 6d. to 33s. 6d.; Durham gas coal, 23s. 6d. to 30s.; coking coal, 17s. to 25s.; house coal, 20s. to 22s. 6d.; bunkers, 24s. to 27s. 6d.; specials, 30s.; foundry coke, 42s. 6d. to 45s.; and blast furnace coke, 35s. 6d.

Owing to the holiday stoppage at the pits and the arrival of a good amount of shipping a considerable amount of fuel has been disposed of by the South Wales collieries. Indeed, the position for some days has been rather that there has not been enough coal to meet current requirements, and not only have the pits been working full time, but there is a prospect of the continuance of existing conditions for some little time, at any rate. Loading has been proceeding very briskly at the docks, mostly on Government account, and ordinary operators have had to delay their business. Steam coal of the best class has become difficult to obtain, and second quality steams are not over abundant. Bituminous coals are also moving off with considerable briskness and there has been great pressure for coke and patent fuel.

Prices are approximately for best steam coal, 35s. 6d.; seconds, 33s. 3d. to 34s.; ordinary steams, 32s. 6d.; drys, 31s. to 32s. 6d.; small steams, 20s. 6d. to 24s.; best large Black Veins, 32s. 6d.; Western Valleys, 31s. 6d.; Eastern Valleys, 30s. 6d. to 31s. 6d.; nuts, 30s. 6d. to 32s. 6d.; duff, 16s. 6d. to 20s. 6d.; house coal, 33s. 3d. to 35s. 6d.; No. 3 Rhonddas, large 33s. 3d. and smalls 28s. 6d.; No. 2 Rhonddas, 29s. 6d., and smalls, 19s. 6d. to 21s. 6d.; through and through coal, 24s. 6d. to 26s.; gas coal, 23s. 6d. to 27s. 6d.; and patent fuel, 32s. 6d.

There has been no slackening in the demand in the Scottish coal trade. The pits are, in fact, producing less than they might be able to dispose of, so large are the home requirements, added to export business. The position is accentuated by a shortage of railway rolling stock in the West of Scotland.

Prices, subject to the addition of 2s. 6d. per ton war wage increase, are for splint coal, 28s. to 30s.; Hartleys, 29s.; Ells, 26s. 6d. to 28s.; screened navigations, 28s. to 30s.; unscreened navigations, 25s. 6d. to 29s.; screened steams, 27s. 6d.; nuts, 21s. to 23s.

A marked scarcity of fuel is still the outstanding feature of the Hull coal market. All classes of coal coming on the market are earmarked for official or contract requirements, and operators find it difficult to get hold of odd parcels. Some dislocation at the pits due to the withdrawal of miners for the army has accentuated the difficulty of obtaining supplies. In the circumstances prices keep very firm.

The Midland coal trade is without change, being characterised by heavy demands from the munition works and manufacturing centres. The former have to be kept well supplied, and consequently private consumers have suffered a shortage which has been accentuated in consequence of the holiday stoppage. For the time being supplies are considerably less than the demand.

On the London coal market there has been little or no activity. Supplies continue to come to hand well, and though the absorption of steam fuel remains steady the consumption of house coal fluctuates. Latterly the more inclement weather has caused an increased demand for house fuel, but merchants are, in the nature of things, expecting a considerable falling off in this branch of the trade in the next few weeks.

COMPANY MEETINGS.

King Line, Ltd.—At the meeting which was held on April 12, the Chairman, Sir Owen Philipps, K.C.M.G., M.P., in moving the adoption of the report and accounts, said the nation had at last realised the importance of the cargo, or "tramp," steamers, such as were owned by their company. The services of those vessels to the nation in the present war, both in transporting stores and the carriage of foodstuffs to our Allies and ourselves, had been incalculable. They all looked forward to the time when the Government would allow the vessels lost in the war to be replaced by new tonnage. When that time arrived, it was the intention of the Board to acquire steamers not only to replace the vessels lost, but to add considerably to their fleet. With that object there would be an issue of additional capital, but on what terms he could not say, beyond giving an assurance that the interests of the shareholders would be carefully considered and protected as far as possible. Only a rash man would attempt to forecast the position of shipping at the end of the war; but one thing was certain, the longer the war lasted the greater would become the facilities for shipbuilding throughout the world. England, Scotland, Ireland, Canada, the United States, and Japan were all considerably increasing the number of their shipping berths. When peace returned, the total capacity of the world for shipbuilding would have been enormously increased. How long it would take for shipbuilders to make good the shortage caused by the German submarine campaign was a matter of opinion; but one thing, he considered, was certain that was, that Germany would probably be one of the worst sufferers from the shortage of tonnage.

The report was adopted.

Houlder Brothers & Co., Ltd.—The 21st ordinary general meeting was held at the offices, 146, Leadenhall Street, London, E.C., on April 9.

The Chairman (Mr. Frank H. Houlder) said that before formally submitting the accounts he could not let the opportunity pass without expressing the sincere congratulations of their colleagues, and the shareholders generally, on the signal honour recently conferred upon Viscount Furness and Sir Frederick William Lewis, Baronet. He was only voicing the general sentiments in expressing the view that those honours were but a just reward for strenuous labour freely given to the nation at the time of stress. The Chairman then said that great prejudice had been created by statements of the Chancellor of the Exchequer and others with regard to the enormous profits supposed to have been made by the shipowners. He had looked into the matter and found that, taking their own company and the shipping companies managed and controlled by it, the total amount of dividend paid to the shareholders for the last year for which accounts had been completed was only £168,750, whilst the amount payable to the Government for excess profits and income tax was considerably over half-a-million—to be exact, £545,743. In these serious times of stress he was not suggesting

they grudged those very large payments to the Exchequer—on the contrary, they were all prepared to make the maximum sacrifice for the national good. He suggested, however, in all seriousness, that in view of the national importance of encouraging the development and further extension of shipping enterprise, any increase of the already onerous war taxation would be very reminiscent of the folly of "killing the goose that lays the golden egg."

The report and accounts were adopted.

Lamport & Holt, Ltd.—The sixth ordinary general meeting was held on April 11 at the company's office, 36, Lime Street, E.C.

The Secretary (Mr. W. J. Moynihan) read the notice convening the meeting and the report of the auditors.

The Chairman (Sir Owen Philipps, K.C.M.G., M.P.), in moving the adoption of the report, said they had earned less profit than in 1916 because the Government took over the remainder of their fleet at Blue-book rates. Their time and attention had been taken up with managing the business—in conjunction with the Ministry of Shipping—to the utmost national advantage, as called for by the critical days through which we were passing. Much of their normal activity was necessarily suspended, such as the continuous expansion of their various trades, especially on those routes where, by enterprise and foresight, the company had created and built up steamship connections which had made the name of Lamport & Holt a household word in far distant parts of the world. It had been suggested that, after the war, British shipping should be nationalised and become a State industry or monopoly. Such a course would, he felt sure, lead to the certain loss of our maritime supremacy, which, as an island people, was a vital necessity. This country hitherto had been the great ocean carrier of the world, not only to and from our own shores, but also between one foreign country and another. One thing was certain, and that was that after the war foreign competition would be keener than ever before. Neutrals, especially, had huge sums in reserve wherewith to build new fleets or to enlarge existing ones, whilst Germany was making preparations on an immense scale to contest our maritime supremacy after the war. He therefore anticipated for the British mercantile marine a very acute struggle if it was to hold its own. Could the nation, under such circumstances, look with confidence to doing so if our shipping is to be taken over and administered by a Government department? He hoped that British shipowners would, as soon as circumstances allowed, be permitted to continue, as in the past, to use their experience, initiative, and energy in maintaining the position in the world's ocean trades which prior to the war they had won. The tremendous events of the last few weeks on the Western Front had tended somewhat to obscure the equally vital issue of the submarine. We should have great difficulty in maintaining our own effort in France unless the submarine was "held," and, if possible, mastered. He still thought this could be done if invention were given full scope and adequate encouragement. The Navy had done splendidly in making the existence of enemy submarines a most precarious one. Lord Pirrie had recently undertaken the duties of Controller-General of Merchant Shipbuilding. They all admired the courage and patriotism which had led him to assume such heavy responsibilities at a time of life when many men looked for less strenuous days, and the result of the application of his unique experience would doubtless be manifest before long in a great speeding up of the production of merchant ships. Notwithstanding the submarine peril, the chairman was pleased to say that the company's fleet was larger now than on August 4, 1914. In addition to more than maintaining their fleet intact, they had during the year acquired a large interest, together with their associated shipping companies, in the Argentine Navigation Company (Nicolas Mihanovich, Ltd.). They had also recently acquired a controlling interest in Archibald McMillan & Sons, Ltd., an old-established shipbuilding company at Dumbarton, which had built a number of their cargo steamers in the past. The company's staff had carried on their work under considerable difficulties, and thanks were due to them and the managing directors (Mr. George H. Melly and Mr. Arthur Cook) for the way in which they had looked after the company's interests in these difficult times.

Mr. Arthur Cook seconded the motion, which was carried.

Mercantile Steamship Company, Ltd.—The management of the Mercantile Steamship Company, Ltd., has been taken over by Edward Hain & Son, of St. Ives, Cornwall, to whom all communications should be addressed.

COMPANY REPORTS AND DIVIDENDS.

Neue Dampfer Cie., Stettin.—A dividend of 10 per cent. is again to be paid.

Cressington Steamship Company, Ltd.—Final dividend of 7 per cent., making, with interim dividend of 3 per cent., 10 per cent. for 1917, against 20 per cent. for 1916.

Peninsular & Oriental Steam Navigation Co.—The directors announce a dividend of 5 per cent. per annum on the Preferred stock, less income tax, and an interim dividend of 12 per cent. per annum on the Deferred stock, free of tax, for the half-year ended March 31 last, the same as a year ago.

Houlder Brothers & Co., Ltd.—The directors announce a dividend of 5 per cent. (5s. per share), free of tax, on ordinary shares for the half-year, making 15 per cent. for the year, £50,000 to reserve, £13,700 carried forward. Last year the dividend was the same; £100,000 to reserve, £19,437 carried forward.

United Steamship Company, Copenhagen.—The directors propose to allocate £144,000 to depreciation (compared with £279,000 last year), £331,000 (£650,000) as reserve for special taxes, and £166,000 (£580,000) to reserve funds. Then, after paying a dividend of 35 per cent. (as last year), there will be £22,100 (£19,700) to transfer to new account.

Irvine's Shipbuilding & Dry Docks Co., Ltd.—The profits for 1917 were £91.545. From this is deducted the depreciation on buildings, plant, and machinery, and amortisation of leaseholds, &c., £6,321; and as provision for excess profits duty, £16,000. The directors propose to pay a dividend on ordinary shares of 8 per cent. per annum from June 30 to December 31, 1917, less tax, and a final preference dividend of 1s. 4d. per share, less tax. It is also proposed to place to reserve account £5,000, and to carry forward £8,786 (against £1,228).

Furness-Houlder Argentine Lines, Ltd.—The directors announce a dividend of 5 per cent. (1s. per share), free of tax, on ordinary shares for the year, £10,035 as provision for excess profits duty, £17,057 to write down discount on debentures account, £8,606 to write down preliminary expenses account, £12,153 carried forward. Last year the dividend was the same: £17,500 for depreciation, £2,000 to write down discount on debentures, £4,600 to write down preliminary expenses, and £44,716 was carried forward, subject to excess profits duty.

Sir W. G. Armstrong, Whitworth & Co., Ltd.—As it will not be possible under existing circumstances to complete the 1917 accounts for some time, the directors have decided to pay, for the half-year ending December 31 last, a dividend of 1s. 6d. per share, free of income tax, on the ordinary shares of the company, 4 per cent. per annum on the first preference shares and 5 per cent. per annum on the second preference shares, both less income tax, to those persons who are on the registers at the closing of the books. In the judgment of the directors the position of the company justifies these payments.

Joh. C. Tecklenborg A.G. Schiffswerft, &c.—The dividend for 1917 is 12½ per cent. compared with 10 per cent. for 1916. According to the annual report, the gross profit was £144,000 (compared with £121,000 in 1916). After deducting £57,400 (£46,800) for depreciation and reserving £1,000 (£500) for dividend tax (last year there was also £12,200 set aside for current guarantees), there remains a surplus of £94,500 (£96,600). This is distributed as follows: War profit tax reserve, £29,500 (£49,000); welfare grants, £12,700 (£9,180); bonuses, £11,650 (£8,180); dividend, £36,800 (£24,500); carried forward, £4,000 (£3,400). Prospects are good for the current year.

Mindener Schleppschiffahrt Gesell.—The profit from freight and towing was £67,000 (compared with £47,200 last year). A dividend of 15 per cent. (10 per cent.) was paid, leaving £468 (£416) to be carried forward from a total net profit of £15,080 (£10,400). Canal and Weser traffic increased further during the year, principally owing to the opening of the Hanover canal in the autumn, and to the increasing use of waterways to relieve railways. A number of vessels were transferred from the Rhine and Elbe. Even then the demand for tonnage could not be met; but it was not possible to use all vessels to maximum advantage, owing to the shortage of tugs. The principal traffic was canal traffic and canal-Weser traffic from Minden to Bremen. Weser traffic is not likely to improve until import and export trade is resumed at Bremen.

Vickers, Ltd.—The directors have decided to recommend a final dividend for the year 1917 of 1s. 6d. per share (free of income-tax at 5s. in the £) on the ordinary share capital, making 2s. 6d. per share, or 12½ per cent. for the year, free of income-tax at 5s. in the £. The dividend will be payable on May 10.

Furness Withy & Co., Ltd.—The directors announce that warrants for the dividend on the ordinary shares of 10 per cent. per annum for quarter ending April 30 (6d. per share), free of income-tax, and for the usual dividend on the preference shares at 5 per cent. per annum for the half-year ending April 30 (5s. per share), less income-tax, will be posted April 30 to holders registered April 16.

Sheffield & South Yorkshire Navigation Company.—The report for the year ended December 31, 1917, states that the terms of the arrangement with the Government during the period of control provide that the compensation payable shall be the amount by which the net revenue of each accounting period during control shall fall short of the net revenue for 1913, and in the event of the accounting period being less than one year the net revenue of that period is to be compared with the corresponding proportion of the net revenue for the standard year (1913). The period of control during the year 1917 was 10 months, from March 1 to December 31, 1917. The net receipts of the undertaking, after adjustment of compensation under the agreement with the Government, amount to £24,887, to which is to be added the balance of £445 brought forward, making a total of £25,333, which, after providing for bank, debenture and mortgage interests, together amounting to £7,279, and transferring £2,000 to contingencies account, making that fund £7,000, there remains a balance of £16,053, which will allow of payment of a dividend of 2½ per cent. per annum on the preference stock, leaving a balance of £428 to carry forward.

General Steam Navigation Company, Ltd.—The 15th annual report states that the accounts for the year ended December 31 last show, after payment of debenture interest, provision for depreciation of shipping and properties, and transfers to reserves, a balance of £44,166, which, with £31,648 brought forward, gives £75,814 for disposal. Subject to confirmation, the directors recommend a dividend on preference shares of 5 per cent., less income tax; final dividend on ordinary shares of 5 per cent., less tax; and to carry forward £33,536. During the year certain of the company's trades came under the Government scheme of requisition, and recently all the remaining steamers of the company's fleet have come under the control of the Ministry of Shipping. The Government inhibition of shipbuilding for other than National account is still in force, and consequently work has not been commenced on steamers for which the company had placed orders. An offer to redeem at 85 per cent. the company's debenture stock met with a satisfactory response, and on December 31 stock to the amount of £95,189 was cancelled. Other holders having expressed their desire to accept, the directors decided to extend the period of acceptance for a reasonable time and to pay interest up to the date of redemption.

Port of Calcutta.—The report for 1916-17 states that ordinary revenue receipts amounted to only 130·62 rs. lakhs and revenue expenditure to 151·34 rs. lakhs. A war surtax which added 26·6 rs. lakhs to revenues converted the deficit into a surplus of 5·88 rs. lakhs, which was devoted to: (1) contributing 3·96 rs. lakhs towards meeting depreciation on securities held in the revenue reserve; (2) adding 1 rs. lakh to the vessels replacement fund and, after meeting the opening debit of 60,035 rs., carrying forward 31,658 rs. to 1917-18. In 1915-16 the expenditure on revenue account was 149·07 rs. lakhs, receipts from ordinary sources 132·37 rs. lakhs, and deficit, neglecting surtax, 16·70 rs. lakhs; but the surtax yielded 26·97 rs. lakhs. The number of vessels arriving in the port was 1,117 with a gross tonnage of 4,512,426 and a net tonnage of 2,804,680, as compared with 1,150 in 1915-16, with a gross tonnage of 4,848,961, and a net tonnage of 2,967,798. The total income of 157·23 rs. lakhs, was less by 2·12 rs. lakhs than that of the preceding year. Receipts from wharfage on imports show reductions in all directions as compared with the previous year: at the jetties from 7·06 rs. lakhs to 6·22 rs. lakhs, at the petroleum wharf from 2·10 rs. lakhs to 2·10 rs. lakhs, at the inland vessels wharves from 1·71 rs. lakhs to 1·57 rs. lakhs, and at the docks from 4·65 rs. lakhs to 3·51 rs. lakhs. The capital debt of the trust at the close of the year was 10,08,56,688 rs. During the year 21·75 rs. lakhs were invested on behalf of the sinking fund. The total assets stand at 14,40,04,267 rs., leaving an excess over liabilities of 3,59,47,579 rs.

COMPANY REGISTRATIONS.

Blair-Frost Ferro-Concrete Company, Ltd.—Capital, £60,000, in £1 shares. Objects: To carry on the business of designers, manufacturers, builders, merchants and dealers in ships, vessels, tugs, lighters and barges, and any beams, blocks and slabs, articles and things (however dissimilar) made wholly or in part of reinforced concrete, or for use in connection with builders', engineers' and paviors' requisites, &c. Signatories:—

P. Blair-Frost, [illegible]
C. Croxford, [illegible]
E. Mills, 157, Upper Allen Street, Sheffield, draper.
W. Mountcastle, 234, School Road, Crookes, Sheffield, commercial traveller.

The first directors are: P. Blair-Frost, C. Croxford and W. Mountcastle. Qualification, £100. Remuneration: £100 per annum (chairman £50 extra). Solicitors: J. E. Wing, 70, Queen Street, Sheffield. Private company.

Burntisland Shipbuilding Company, Ltd.—Capital, £150,000, in £1 shares. Objects, shipbuilding, engineering and boiler-making in all its branches in the United Kingdom of Great Britain and Ireland. Agreement with A. L. Ayre and Wilfred Ayre. Signatories:—

W. Robertson, Binachie, Dunfermline, damask manufacturer.
D. W. Paton, [illegible], Murrayfield, Edinburgh, painter.
C. R. Orr, Monifieth, engineer.
W. Ayre, 111, Whinhill Road, Aberdeen, shipbuilder.
A. Wallace Cowan, [illegible]
A. L. Ayre, 14, Darnley Avenue, Scotstoun, Glasgow, shipbuilder.
A. Lindsay, Clifton Hall, Ratho, Midlothian.
T. W. Bourn, Jesmond, Newcastle-on-Tyne.

Minimum cash subscription, £500. The first directors are: W. Robertson, D. W. Paton, C. R. Orr, W. Ayre, A. L. Ayre, A. Wallace Cowan, A. Lindsay and T. W. Bourn. Registered office: 1, Howe Street, Edinburgh.

Edinburgh Steamship Company, Ltd.—Capital, £35,000, in £1 shares. Objects, to carry on the business of shipowners, shipbrokers, charterers, barge owners, lightermen, carriers by land and water, forwarding agents, warehousemen, wharfingers, storekeepers, traders, importers and exporters. Signatories:—

J. Mitchell, 39, Dock Street, Dundee, shipowner.
J. Morton, 78, Commercial Street, Dundee, clothier.
J. Langlands, 7, Argyle Street, Dundee, quarrymaster.

Managers of the company, James Mitchell & Sons, shipowners, Dundee. Registered office: 39, Dock Street, Dundee. Private company.

James, Llewellyn & Merrett (London), Ltd.—Capital, £30,000, in £1 shares. Objects, colliery owners, coal, coke and fuel merchants and factors, timber merchants, dealers in iron ore, pit-wood and general merchandise, shipowners, shipbrokers, &c. Signatories:—

C. E. M. James, Cae Nicholas, Lisvane, Cardiff, colliery agent.
H. H. Merrett, Highfield, Llandaff, colliery proprietor's sales agent.

The first directors are: C. E. M. James, H. H. Merrett, and D. R. Llewellyn. Solicitors: Ingledew & Sons, 4, Mountstuart Square, Cardiff. Private company.

African Boating Company (1918), Ltd.—Capital, £10,000, in £1 shares. Objects: To carry on the business of landing, shipping agents, forwarding agents, and ship and freight brokers, insurance brokers, at Durban, Natal, or elsewhere. Signatories:—

A. Hunt, 3, Fenchurch Street, E.C., shipping manager.
I. M. Crash, 3, Fenchurch Street, E.C., accountant.

The first directors are to be appointed by the subscribers. Registered office: 3, Fenchurch Street, E.C. Private company.

Sykes-Morris Submarine Acoustics, Ltd.—Capital, £2,000, in £1 shares. Objects, to acquire patents, brevets d'invention, licences, concessions and the like, &c. Signatories:—

A. F. Sykes, B.Sc., A.M.I.E.E., Lorne Villa, New Barnet, Herts, electrical engineer.
J. T. MacGregor-Morris, 3, Lyndhurst Road, Hampstead, N.W. 3, electrical engineer.
N. A. Piercy, B.Sc., A.B.Ac.S., 3, King's Bench Walk, Temple, E.C., aeronautical engineer.
G. D. West, M.Sc., 105, The Drive, Fulham, S.W. 6.
C. K. Morris, Ph.D., M.E.E.E., 14, Waverley Road, Kenilworth, electrical engineer.
E. C. Cresswell, Willoughby House, New Barnet, motor agent.

The subscribers are to appoint the first directors. Registered office: Lorne Villa, New Barnet, Herts. Private company.

QUESTIONS IN PARLIAMENT.

Shipping Losses.

In reply to Mr. G. Lambert who on April 10 asked for the amount of British mercantile tonnage lost in the quarter January—March, 1918, Dr. Macnamara said: The whole question of publication has been the subject of careful discussion with us and proposals are now before the War Cabinet on the subject.

Mr. G. Lambert: Will it give information to the enemy to publish losses by submarine, lumping them together for the first three months of the year?

Dr. Macnamara: That is the whole question which is being discussed by the War Cabinet. I have no doubt if they found it necessary it will be done.

Losses and Night Sailings.

Mr. Byrne on April 15 asked the Secretary to the Admiralty whether he could state the number of ships lost through collision and mines which might have been avoided if daylight sailings were carried out.

Dr. Macnamara: It is impossible to say how many vessels lost at night through collisions and mines would have been immune if they had sailed by day. Night sailings are necessary and the loss does not exceed the loss by day.

Ocean-Going Tonnage.

Mr. Holt on April 10 asked the Secretary to the Admiralty to state the amount of ocean-going tonnage owned, respectively, on July 1, 1914, and January 1, 1918, by France, Italy, the United States, Japan, Netherlands, Denmark, Sweden, and Norway.

Dr. Macnamara: Specific information as to ocean-going tonnage on July 1, 1914, is not available for each of the countries mentioned. It is impossible to state the position at January, 1918.

Mr. Holt: Is my right hon. friend aware that the White Paper recently published states that the net increase is 1,000,000 tons?

Dr. Macnamara: My hon. friend overstates the net gain. The White Paper on Merchant Tonnage and the Submarine shows the position at the end of 1917 for foreign merchant ships as follows: Losses, 4,748,080 tons; gains, new construction, 3,574,720, and enemy tonnage captured 1,809,000. That is a net gain of 635,640 tons and not 1,000,000.

Alien Crews in the Port of London.

Mr. Gilbert on April 10 asked the Home Secretary what action had been taken in order to control the alien crews of neutral steamers that arrived in the Port of London.

Sir G. Cave: This is a matter which has received the close attention of the naval and military authorities and of my Department since the beginning of the war, and steps are taken, whenever the conditions allow, to improve and strengthen the control. It is not the case that officers of neutral ships are freely allowed ashore. It is with regard to neutral ships from neutral European ports that special watchfulness is necessary, and in this case permission to land is confined to the master for the necessary business of the ship, to the steward or other responsible officer for the purpose of provisioning the ship, and, if necessity arises, to the chief engineer. The permits are granted only when shown to be strictly necessary, and are limited to specified hours. In order to prevent unauthorised landing from these ships, military guards are provided, and they co-operate with the aliens officers and the police in securing that the regulations are strictly observed.

Irish Cross-Channel Service.

In the course of a reply to Mr. Farrell on April 11, regarding the protection of the Irish mail boat, Dr. Macnamara stated: Reports of being missed by torpedoes have been received from vessels belonging to the City of Dublin Steam Packet Company on three occasions within the last month. I am not aware of the grounds for the assumption that the North Wall service is practically closed, and it is not in the public interest to state what measure of protection is being, or is going to be, afforded to this traffic; such information would be of the greatest value to the enemy, but my hon. friend may rest assured that the best possible protection with the means at our disposal has been, and will continue to be, given to this and all other traffic.

The "Abydos" as a Floating Workshop.

In reply to Mr. King, who on April 10 asked a question relating to the use of the P. & O. steamer *Abydos*, Mr. Herbert Fisher (on behalf of the Secretary for India) said: The Secretary of State has obtained the following information from India about the *Abydos*: In August, 1916, the War Office asked the Government of India if any vessel was available in India for a floating workshop at Basra. The Quartermaster-General in India consulted the Indian Engineering Association, a body representative of the engineering profession in India, who reported that the *Abydos* was suitable. She was fitted out at a cost of about £45,700 and sent to Basra. No expert advice was given against the impressment of the vessel for the purpose. On her arrival at Basra a committee assembled by the Director, Inland Water Transport, decided that the machinery could be more usefully employed on shore. It was accordingly removed with the concurrence of the War Office, and the vessel was returned to her owners. No structural alteration had been made which unfitted the vessel for her ordinary purposes. The £45,7000 includes the cost of the machinery and workshops which were utilised on shore. The owners were presumably paid at Blue-book rates for the hire of the vessel

No Committee on Shipbuilding.

Mr. J. Mason on April 11 asked the Chancellor of the Exchequer whether the Prime Minister had considered the desirability of appointing a Committee of inquiry into the question of shipbuilding.

Mr Bonar Law: The Government are not prepared to adopt the suggestion contained in this question.

Chepstow Shipbuilding Yard.

Answering Mr. Fletcher on April 11, Dr. Macnamara stated: The Standard Shipbuilding Company's yard at Chepstow was taken over by the Lands Branch of the War Office and Ministry of Munitions on instructions from the Admiralty. No loss of output has been sustained by this action, but, on the contrary, a much larger output will be secured by the transfer.

Mr. Stewart asked whether the Government had commandeered the Chepstow shipbuilding yard from private owners who had raised £600,000 to equip the yard and were ready to begin shipbuilding at once; if so, whether any progress in building had been made since the Government had acquired the yard; and what compensation, if any, was to be given to the founders of the enterprise.

Dr. Macnamara: The answer to the first part of the question is in the affirmative, but the progress being made with the construction of the yard at the time it was taken over was not such as to enable any start to be made with the actual building of ships. Very good progress has been made with the construction of the yard since the Government acquired it, and the building of ships will be commenced at an early date. Two berths are already completed, and it is anticipated that eight berths will be completed by October next. It is proposed to commence actual ship construction during the present month. The question of compensation to the owners of the property taken over is still the subject of negotiation.

Engineers and the Army.

Mr. Holt on April 11 asked the Under-Secretary for War whether Private E. C. Pollard, No. 019,438, Mechanical Transport, Army Service Corps, now employed as a motor driver in France, was a skilled shipbuilding engineer who served four years with Messrs. Vickers at Barrow; and, if so, why was he not sent back to the shipbuilding and engineering trade.

Mr. Macpherson: I understand that the facts stated in the first part of the question are correct, but, in view of the existing military situation, it is not proposed to take any special action in the matter at present.

Mr. Holt: In view of the present military situation, will these skilled men be sent back to France?

Mr. Macpherson: I understand that no skilled shipbuilders were ever returned to France.

Ship Repairs.

Answering Commander Bellairs, on April 9, who asked for a statement on the average tonnage under repair, Dr. Macnamara (Secretary to the Admiralty) said: The First Lord has considered very carefully whether it would be possible or advisable to give detailed figures of tonnage under repair or awaiting repair. There are two main objections to giving these figures—first, they would give information to the enemy as to the extent of the damage to vessels which he hits but does not sink; and, secondly, it is exceedingly difficult to frame a return which would make a fair distinction between minor and heavy repairs. We have, however, already given the House on other occasions an indication and figures as to repair work which is being successfully carried out. These figures, of course, included vessels which only occupied the dry docks for comparatively short

space of time. I can only add that the rate of repair work is being consistently maintained.

Joiners' Strike in a Shipyard.

Mr. G. Terrell, on April 15, asked the Secretary to the Admiralty whether the carpenters who were on strike for some time at a certain shipyard establishment delaying the construction of a troop leave ship, and who returned to work, did so on the understanding that they should work at time rates instead of piece work as formerly; if the men were taken back on this understanding by the instructions of the Government to the firm concerned; and if, as a result of this change, there had been a serious falling off in the output of work.

Dr. Macnamara: The joiners on strike did return to work on the understanding that they should work at time rates instead of the system of modified piece work formerly in force for this class of work in the yard in question. The men were taken back at time rates on the instructions of the Admiralty. It is not yet known to what extent the change in the system has affected output.

National Service Shipyard Volunteers.

Colonel G. Collins, on April 11, asked the Secretary to the Admiralty whether he was aware that a certain limited number of National Service shipyard volunteers were now working in shipyards on the Clyde; was he aware that many of these men were physically unfit, and many after a few days were sent back to their former employment; and what steps he proposed to take in the matter.

Dr. Macnamara: The answer to the first part of the question is in the affirmative. Of necessity those men who are unskilled labourers are men unfit for military service. A certain number of the men who were sent to the shipyards for employment have been returned to their homes, as they have been found to be medically unfit for such labour. Arrangements have now been made, however, for all applicants to be medically examined before being enrolled, and should any man be found unfit for hard manual labour his services are not accepted.

Clyde Riveters.

Colonel Collins, on April 11, asked the Secretary to the Admiralty whether he was aware that skilled riveters on the Clyde over thirty years of age have been ordered to report for Army medical examination at Stirling or Perth; and what steps he propos d to take in the matter.

Dr. Macnamara: So far as I know there is no foundation for the suggestion in the question. But I will make further inquiry

Admiralty Shipbuilding Contracts.

Colonel Collins, on April 11, asked the Secretary to the Admiralty whether firms constructing standard ships or ships of war were paid either by a percentage on the cost of labour or a fixed sum for management expenses and profit.

Dr. Macnamara: So far as standard ships are concerned the contract is on the time and line system, that is to say, after material and labour are paid for, a certain amount is allowed for establishment charges, and in addition an overall profit is allowed; these last two items are fixed according to the type of vessel under construction. As regards ships for the Royal Navy; in some cases, namely, those of the smaller auxiliary vessels, a fixed price for the whole ship is as a rule the system of payment. For warships proper, the contracts are on the time and line system, the expenses of management and the profit being paid for as a rule by fixed sums.

Repatriation of Merchant Service Officers.

Mr. Peto asked the representative of the War Prisoners Department, on April 16, whether, out of the 65 merchant service officers of over 45 years of age who were eligible for repatriation and who were now interned at Ruhleben, only 11 had been repatriated under the agreement made at the Hague with the German Government; whether he could state how many German civilians who were officers of the German mercantile marine had been repatriated in the same time; and whether he could state what was the reason why the agreement arrived at was not promptly and completely carried out.

Mr. J. F. Hope: The repatriation of British and German interned civilians over 45 years of age, including merchant service officers and seamen, is not governed by the Hague Agreement but by the Agreement of January 2, 1917. Since that date, as I understand, 44 British merchant service officers have been repatriated from Ruhleben and other camps in Germany, as against 22 from various camps in this country. I may add that 16 German merchant officers are being repatriated in the course of the next few days. The delay in the repatriation of this category of prisoners was caused by a difference of opinion with the German Government as to their status.

Merchant Service Apprentices in Germany.

In reply to Mr. Peto, who, on April 16, asked a question relating to the treatment of boys who were cadets and apprentices in the mercantile marine, now interned in Germany, whether their employment in arduous labour was contrary to the provisions of Annexe 3 of the Hague Agreement with regard to youthful prisoners of war, Mr. J. F. Hope stated: On March 21 the Netherlands Minister at Berlin was informed by telegram that His Majesty's Government had received information that cadets and apprentices of the British mercantile marine who are prisoners of war in Germany are, in many cases, being subjected to the same treatment as merchant seamen, notwithstanding the proposal made to the German Government in October last, that Annexe 3 of the Hague Agreement should be put into force. The Minister was also asked to urge the German Government to give effect to our proposal with the least possible delay if they are prepared to accept it. In consequence of the information lately received, a fresh remonstrance will be addressed to the German Government.

NEWS PARAGRAPHS.

New Argentine Shipping Law.—His Majesty's Minister at Buenos Ayres reports that a law has been promulgated increasing the present tariff for lights, buoys, health, warehouse, porterage, port, mole, crane, and traction dues by 50 per cent. for foreign vessels and 25 per cent. for national coasting vessels.

A.S.E. and Man-Power.—The result of the ballot of the members of the Amalgamated Society of Engineers throughout the country on the question of the Government's Man-Power proposals is as follows:—In favour of now accepting the Government's proposals and explanations, 58,650; against accepting, 46,332; majority in favour, 12,318. The ballot papers when issued were accompanied by a statement explaining the present position.

Shipbuilding on the Delaware.—In his report for the year 1917 the Port Director of Philadelphia states that the aggregate tonnage of ships leaving the ways of the six largest shipbuilding companies on the Delaware River during 1917 was 307,604 tons, representing approximately $76,000,000. In the near future there will be 146 slipways in the district, and it is estimated that 36 per cent. of the ships now being built in the United States are being constructed on the Delaware.

New Shipyard in Japan.—That good progress is being made with the construction of the new shipbuilding plant at Tokuyama, near Shimonoseki, Japan, which is expected to be one of the largest shipyards in the world. The Kuhara Mining Company is putting up the plant, which will be completed about the end of the year. The owners of the plant intend making it on the model of Vickers, Ltd., with a self-contained town created in the neighbourhood. About 20,000 workmen will probably be employed.

Refloating Vessels.—According to *Hamburgischer Correspondent* the "Odin" German Ship Refloating Company, Ltd, has been established in Berlin with a capital of 5,000,000 marks. The purpose of the new concern is to refloat ships and cargoes, for which it already possesses five special vessels, two of which (600 tons each) are furnished with the latest technical appliances. Many promising refloating projects are in contemplation. Among the firms participating in the scheme are the German Insurance Bank, which has invested 100,000 marks, several German transport insurance companies, a number of Rostock and other firms, and an engineering works.

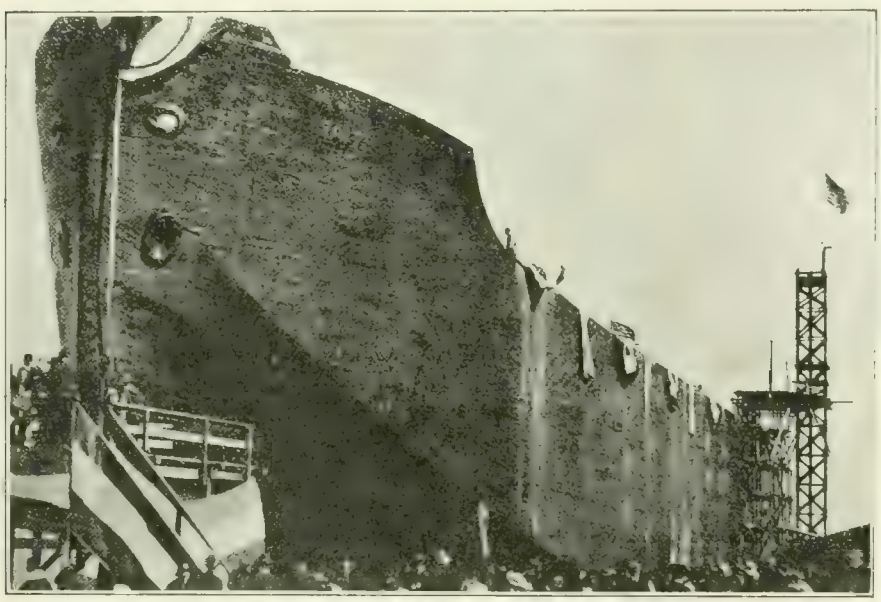
Hamburger Elbewerft A.G., Hamburg.—This company has been established with a share capital of £220,000 to undertake the construction of merchant vessels, principally standard types up to 5,000 tons. The new company is taking over the structural ironworks and shipyard of the firm F. H. Schmidt (Hamburg) and intends to add considerably to the existing equipment, and to develop it for the construction of sea-going vessels. The necessary preparations have already been commenced. The founders of the company include A. Fester & Co., Dusseldorf; F. W. Dahlstrom, Hamburg; H. A. Kirsten, Hamburg; Emil Nolting & Co., and F. H. Schmidt (Hamburg). The first superintending council comprises Joh. Becker, W. Dahlstrom, W. Heermann, H. Kirsten, Dr. Lutteroth, and Max Morck (director of the Verein. Bugsir u. Frachtschiffahrt Gesell.).

New Rome Shipping Company. The *Telegrafo*, of Leghorn, states that a new navigation company, with a capital of 100,000,000 lire, has been formed in Rome. Conte Rosolino Orlando is chairman of the board.

Lloyd Italico Insurance Company.—This company has been established in Genoa for marine insurance and re-insurance against war and ordinary risks, supported by the Gio Ansaldo Company and the Società Nazionale di Navigazione.

Status of Port Talbot.—The Port Talbot Chamber of Commerce and Shipping have been successful in their efforts to obtain the opening of a Board of Trade surveyor's office at the port. Captain Sharpe, of the Board of Trade, with whom the Chamber have been in direct negotiations throughout, is largely responsible for this improvement in the status of the port.

Launch of U.S. Concrete Ship "Faith."—In our issue of March 21 we chronicled the launch of a large ferro-concrete ship having a deadweight carrying capacity of 5,000 tons. We are now able to publish a photograph of this vessel taken during the launching ceremony just before she left the ways. It is



Launch of Ferro-Concrete Ship "Faith," 5,000 tons d.w.

of interest to note that the hull has been designed on the "straight lined" principle, the sides being absolutely vertical and a sharp angle forming the turn of the bilge. It may be recalled that this vessel, which has been christened the *Faith*, is 320 ft. long, 44½ ft. beam, with a draught of 30 ft., and that she will be fitted with engines capable of giving her a speed of 10 knots.

Shipwrights and the 12½ Per Cent. Bonus.—A complaint by the shipwrights employed on the engineering side of Yarrow's shipbuilding yard came before a Munitions Tribunal in Glasgow last week. The men complained that so far as they were concerned, the Order authorising the payment of the 12½ per cent. bonus had not been given effect to between October, 1917, and February, 1918. It was shown that the men were paid an allowance for increased output, and the chairman said that unless this had been recognised as wages, the complainers were excluded from sharing in the bonus during the period mentioned.

A Naples Port Consortium.—According to the *Marina Mercantile Italiana*, an agreement was signed on January 25, at Rome, between the Government and some Neapolitan interests for the autonomous administration, &c., of the port of Naples. Port works involving an expenditure of 50,000,000 lire have to be carried out in seven years. The money will be found partly by the Government and the Banco di Napoli, one of the signatories of the agreement. These signatories will form a "consorzio" to give permanent form to the undertaking, which it is critically suggested is in the hands of a limited number of local interests, perhaps to the detriment of the Neapolitan hinterland, which uses the port, but is not provided for in the constitution of the new body.

Australian Grain Transport.—It is estimated that even if no further grain is bought in Australia by the Imperial Government, it will take at least five years to move the wheat now stored in the Commonwealth, assuming that pre-war tonnage is available for the purpose, which is not likely to be the case.

Rivet Driving Record.—According to an Admiralty wireless message from the United States, a riveter at the plant of the Baltimore Dry Docks & Shipbuilding Company has broken the world's record for driving rivets, having driven 2,720 rivets in a nine-hour day. Mr. Hurley, Chairman of the United States Shipping Board, has expressed pleasure at learning of similar contests going on at other shipbuilding yards.

U.S. Mercantile Marine in 1916.—According to the official *Commerce Reports* (Washington), a preliminary report issued by the United States Bureau of the Census shows that American-owned merchant vessels of five tons net register or over, of all classes, operating during the year 1916 on the coast or inland waters of the United States, including Alaska, or between ports of the United States and foreign countries, numbered 37,894, and had a total gross tonnage of 12,250,000. The geographical distribution of this tonnage was as follows: Atlantic coast and Gulf of Mexico, 6,509,000; Mississippi River and its tributaries, 1,621,000; Pacific Coast, including Alaska, 1,186,000; Great Lakes and St. Lawrence River, 2,738,000; canals and other inland waters, 196,000. The distribution, according to method of propulsion, was: Steam and other power, 6,098,000; sail, 1,089,000; unrigged, 5,063,000.

American Tonnage. — The Washington correspondent of *The Times* reports that the United States has 2,762,605 tons of shipping in the Transatlantic service to carry men and munitions to France. In addition, there are still 471,000 tons of Dutch ships to be put into the service as soon as the crews are available, and 250,000 tons of Japanese shipping are already arranged for. By the end of May it is believed that American controlled Transatlantic tonnage will reach 3,500,000, and the Shipping Board experts are convinced that the fleet available for Transatlantic service will be gradually increased, despite the efforts of German U-boats. The authorities are confident that the output for April, May and June, will be more than double the output for January, February, and March.

Mr. Schwab as Director-General of American Shipbuilding.—Mr. Charles M. Schwab, head of the Bethlehem Steel Corporation and one of the directors of the Fore River Shipbuilding Corporation, has been appointed Director-General of the Emergency Fleet Corporation. He is to have entire control of the Government shipbuilding programme, subject to the direction of the Shipping Board, which will be responsible for policy and for determining the number and character of the ships to be built.

Shipbuilding Advisory Council Resigns Control.—The Secretary of the Admiralty makes the following announcement:—"The members of the Shipbuilding Advisory Council have individually informed the Admiralty Controller that, whilst they desire to continue to place their services as leading members of the shipbuilding and engineering industry unreservedly at the disposal of the First Lord and the Controller-General of Merchant Shipbuilding, in the furtherance of the output of tonnage, they feel that the existence of a Council at this stage may have the effect of limiting Lord Pirrie's freedom of action. They have, therefore, tendered their resignations as members of the Shipbuilding Council. The Admiralty take this opportunity of acknowledging the great debt which the country owes to these gentlemen for the valuable advice and assistance they have given during the whole time the Council has been in existence, and have gratefully accepted their cordial offer of continued co-operation." The members of the Council were Mr. W. S. Abell, Sir George Carter, K.B.E., Sir Frederick N. Henderson, K.B.E., Mr. James Marr, C.B.E., Mr. A. C. Ross, C.B.E., and Sir Herbert Rowell, K.B.E.

OFFICIAL NOTICES AND SHIPS FOR SALE.

THOS. PINKNEY & SONS

(Thos. Pinkney, S. Renny Pinkney, David R. Pinkney).

SHIPPING AUCTIONEERS.

BROKERS FOR THE SALE AND PURCHASE OF STEAMERS, &c.

LICENSED VALUERS.

VALUATIONS FOR WAR LOSS, PROBATE, SALE, &c.

BALTIC CHAMBERS, SUNDERLAND.

Telegrams: "SPARDECK."

BY order of the Proprietor, who is retiring from business, Messrs. FULLER, HORSEY, SONS & CASSELL are instructed to invite tenders for the purchase, in one lot, as a going concern, of the old-established

Freehold Shipbuilding and Engineering Works,

at Canning Town, of A. W. ROBERTSON & CO. The works, which have the extensive frontage to Bow Creek of 480 ft., contain an area of nearly two acres. The buildings are conveniently arranged for economical construction, and are equipped with modern shipbuilding and engineering plant. The whole of the fixed plant, machinery and fixtures, as also the GOODWILL of the business, with patterns and drawings and work in progress, will be included in the sale. The purchaser will have an option of acquiring the loose plant, tools, stock, and stores at a valuation. He will be entitled to the beneficial interest in the running contracts, but required to give an indemnity in respect thereof.

Tenders, which must be on the form attached to the particulars, must be delivered by 12 noon on Monday, April 22nd, at the Office of the Auctioneers, 133, High Holborn, W.C. 1.

The works may be viewed by orders only, to be obtained of Messrs. Forbes & Son, Solicitors, 12, Mark Lane, E.C., and of Messrs. Fuller, Horsey & Co., Mechanical Auctioneers and Valuers, 133, High Holborn, W.C.1.

AGENCIES WANTED.

OFFICER, invalid from the Army, is open to represent good firm in dry-dock and colliery requisites in the Bristol Channel. Connected with shipping people for over 17 years. Apply Box 911, c/o *Shipbuilding & Shipping Record*, Queen Anne's Chambers, Westminster, London, S.W. 1.

GLASGOW FIRM OF ENGINEERS (established over 20 years), well in with Clyde Shipbuilding and Auxiliary Firms, is open to take up suitable Agency. Firms of repute only considered. Replies to Box 332, *Shipbuilding and Shipping Record*, Queen Anne's Chambers, London, S.W.1.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Wednesday.

All advertisements should be addressed to—
Shipbuilding and Shipping Record,
Queen Anne's Chambers,
Westminster, London, S.W.1.

"SHIPBUILDING AND SHIPPING RECORD" TABLE OF SHIP SALES.

Name and Type.	Tonnage.	Dimensions. Draught in ( ).	Sold by, to	Builders, hull and year.	Machinery and builders.	Remarks.
Aila, ss. (single dk.) ex *Eleanore Mail*)	1,865 gr. 1,096 net	269′ × 40½′ × 18′ (17′ 9″)	O. H. Wiens, Malmo, Sweden, to Rederiaktiebolag Svenska Lloyd, Gothenburg	Craig, Taylor & Co., Stockton (1899)	21, 34, 56 × 39 (MacColl & Pollock, Sunderland)	—
Albiana, ss. (spar dk.) (ex *Braemount*)	3,607 gr. 2,297 net 5,850 d.w.	350′ × 46¼′ × 17½′ (23′ 3″)	Sale & Co., London, to buyers not stated	W. Pickersgill & Sons, Sunderland (1898)	23½, 40, 66 × 45 (G. Clark, Ltd., Sunderland)	Price about £72,500.
Argo, ss. (single dk.)	411 gr. 249 net	144½′ × 25′ × 11¾′	T. S. Falck, Stavanger, to H. Waalmann, Tonsberg	Stavanger Stöberi & Dok, Stavanger (1897)	13½, 22, 34 × 25 (Laxevaags Maskin & Jernskibsbyggeri, Bergen)	—
Bright Wings, ss. (single dk.)	3,116 gr. 1,992 net 5,500 d.w.	331½′ × 49′ × 21¼′ (20′ 7″)	Limerick S.S. Co., Limerick, to buyers not stated	Russell & Co., Pt. Glasgow (1909)	23, 37, 61 × 42 (J. G. Kincaid & Co., Greenock)	—
F. & T. Lupton, s.v.	922 gr. 798 net	188½′ × 40′ × 17′	Mr. A. J. Brown, Perth Amboy, N.S., to M. Mazzella & Co., Oran	Jackson, Sharp & Co., Wilmington (1888)	—	—
Halland, ss. (single dk.)	420 gr. 196 net	158¾′ × 24½′ × 10½′	R. H. Möller, Halmstad, to Trawlaktiebolaget Sill, Gothenburg	Motala Co., Gothenburg (1884)	20, 35 × 35 (Motala Co.) ..	—
J. Jover Serra, ss. (spar dk.) (ex *Port Caroline*)	3,706 gr. 2,063 net	378½′ × 44′ × 20¼′	J. Jover y Costas, Barcelona, to buyers not stated	W. Dobson & Co., Newcastle (1889)	30, 49, 82 × 60 (Wigham, Richardson & Co., Newcastle)	Price about £127,500.
Larne, ss. (spar dk.) (ex *Aldenham*, ex *Nineveh*)	3,808 gr. 2,410 net	365′ × 45′ × 20½′	The R.M.S.P. Meat Transports, Ltd., London, to the Zurbaran SS. Co., London	R. Napier & Sons, Glasgow (1894)	28½, 42, 70 × 54 (R. Napier & Sons)	—
Lord Ormonde, ss. (spar dk.)	3,914 gr. 2,533 net	360′ × 46¼′ × 19½′	Davie S.B. & Repairing Co., Quebec, to the Dominion Mercantile Marine Corpn., London	W. Dobson & Co., Newcastle (1899)	24, 40, 64 × 48 (J. Dickinson & Son, Sunderland)	—
Melmore, ss. (single dk.)	424 gr. 180 net	156½′ × 25¾′ × 11½′	Milne & Co., Vancouver, B.C., to buyers not stated	D. J. Dunlop & Co., Pt. Glasgow (1892)	15, 23, 38 × 27 (D. J. Dunlop & Co.)	Price about £35,000.
Snow & Burgess, s.v.	1,655 gr. 1,529 net	228½′ × 41½′ × 24¾′ (19′ 11″)	A. P. Lorentzen, San Francisco, to Mr. C. Henry Smith, New York	S. Watts, Thomaston, Me. (1878)	—	Price about £45,000.
Sydney Reid, ss. (pt. awning dk.)	2,852 gr. 1,842 net	306½′ × 41½′ × 22½′	The Reid S.S. Co., Cardiff, to Bede SS. Co., Newcastle	J. Readhead & Sons, S. Shields (1893)	23, 37½, 61½ × 42 (J. Readhead & Sons)	Price about £42,500.
Wethersfield, ss. (single dk.) (ex *Westmount*)	1,875 gr. 1,171 net 3,050 d.w.	248¾′ × 42′ × 20½′ (18′ 6″)	Inter-American S.S. Co., Montreal, to buyers not stated	C. S. Swan & Hunter, Ltd., Newcastle, (1903)	21, 35, 58 × 39 (N.E Mar. Eng. Co., Newcastle)	—

Norwegian Shipbuilding in 1917.—Only 50 vessels, totalling about 35,000 gross tons, were completed during 1917 (excluding vessels under 100 tons), according to a summary presented by *Hansa*. The number of vessels under construction, however, increased considerably. Vessels under construction and on order at three dates were as follows :—

	Under Construction.		Ordered.	
	No.	Gross Tons.	No.	Gross Tons.
January 1, 1918	127	91,440	98	113,240
July 1, 1917	91	83,160	78	94,935
January 1, 1917	77	61,400	?	?

As regards wooden vessels of 100 tons and over, under construction or on order, there were 79 (totalling 19,000 gross tons), mostly motor ships.

FORTHCOMING EVENTS.

NORTH-EAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.—Tuesday, April 23, meeting at Bolbec Hall, Newcastle-upon-Tyne, at 7 p.m. Paper by Mr. G. Holt Thomas on "The Future of Aerial Transport."

LIVERPOOL ENGINEERING SOCIETY.—Wednesday, April 24, meeting at Royal Institution, Colquitt Street, Liverpool. Mr. R. Crofton, on "Photo-Micrographic Examination of Metals."

INSTITUTION OF ELECTRICAL ENGINEERS.—Thursday, April 25, meeting at the Institution of Civil Engineers, Great George Street, Westminster, S.W., at 6 p.m. Mr. E. C. McKinnon, on "Large Batteries for Power Purposes."

SHIPPING SHARE MARKET.

Although markets opened slightly better after the week-end, thanks to the more reassuring news from France, there was still a very halting tendency owing to the uncertain effects of the new Man-Power Bill and the postponed Budget. The Budget is in some quarters expected to contain further severe burdens for the unearned income-tax payer, and also for the civilian "exempt" who is left in business. Whatever may be in store for the investor, it is certain that he is hesitating what to do with his existing securities at the present time. It is probable that there will be some selling of stocks for re-investment in War Bonds, in which case shipping companies' securities which show the most profit of any section of the Stock Exchange will doubtless feel the effects of the realisation temporarily. During the past week one or two shares which had advanced considerably earlier in the year have exhibited a reaction. Clan Line shares have fallen back several points to 44½. Cunards have reacted to 80s. Furness Withys have been active between 61s. 6d. and 62s. 6d. Warrants for the usual quarterly dividends at the rate of 10 per cent. per annum will be posted on April 30. Both the heavy stocks, Peninsular and Oriental and the Royal Mail have been firm at their advanced prices. General Steam Navigation shares have changed hands at 33s. on the report, which shows a profit of £44,200 as against £46,600. The dividend is 10 per cent. as against 15 per cent., but this reduction does not indicate necessarily a reduction of profits, as the ordinary shareholders received under the scheme of re-arrangement of capital early last year a considerable addition to their capital through the distribution of the reserves. In the shipbuilding section there has again been a substantial amount of business, as it is realised that whatever the future may have in store for shipping companies the shipbuilding undertakings appear to be secured a very busy time for the next ten years. Among the interesting events of the week was the issue of the report and accounts of Irvine's Shipbuilding and Dry Docks Company for the first time in its history. The net profits were £65,400 as compared with about £56,000. In the iron and steel and armament group business has been quieter. Both Vickers and Armstrong Whitworths are declaring dividends at the same rate as last year.

SHIPPING, SHIPBUILDING, ENGINEERING AND MARINE INSURANCE SHARE LIST.

SHIPPING.

Name.	Share and paid.	Extreme quotations, 1917.	Last ann. div. % or per share.	Yield. %	Last Quotation	Rise or Fall.
	£					
African S.S.	20	30½—25⅛	10	7½	28	
Allan Line ... ... Deb.	100	—	4	4⅜	92	
Anchor Line ... Cum. pref.	10	9½—8⅜	5⅜	5¾	9⅛	
Do. ... ... Deb.	Stk.	105⅛—102½	4⅜	4⅛	103	
Argentine Nav. ... Cum. pref.	1	25/—14/3	6	5¼	22/9	
Do. ... ... Ord.	1	20/6—6/6	Nil.	Nil.	16/6	
Australasian Un. S. Nav. Deb.	Stk.	80⅜—79½	4	5	81	
Belfast Steam ... ... "A"	10 (5pd.)	—	5	5	5	
British & Argen. Nav. ... Deb.	Stk.	84—80	4⅜	5¼	81	
British India Nav. ... Deb.	Stk.	84—82	4⅜	5⅜	81⅜	
British S.S. Invest. Trust Def.	Stk.	460—344¼	50*	11⅞	427	
Do. ... ... Pref.	Stk.	105⅜—104	6	5⅞	102	
Do. ... ... Deb.	Stk.	74¼—70	4⅜	6 1/16	72	
Cairn Line ... ... Deb.	Bds.	94—90	5	5⅜	90⅜—91	
Do. ... ... Ord.	1	51/6—40/9	20†	8	54/-	
Clan Line ... ... Ord.	10	55½—26⅜	25	5¼	49	
Court Line ... ... Ord.	£1	40/6—29/6	10	5⅞	35/-xd	
Cunard SS. ... ... Ord.	1	85/—63/9	20*	5	81/3	
Do. ... Cum. pref.	Stk.	97⅜—82	5	5¾	86¼	
Do. ... ... Deb.	Stk.	100—93½	4⅜	4⅝	98	+ ½
Elder Line ... ... Deb.	Stk.	95—89	4⅜	4⅝	103	
Elder Dempster ... Cum. pref.	1	19/—17/-	5⅜	6½	19/-	
Do. ... ... Deb.	Stk.	89—85	5	5⅞	82⅛	
Ellerman Lines ... Pref. Ord.	10	9¼—8⅜	6¼	6¾	9⅜	
Do. ... Guar. pref.	10	9—8¼	4⅜	5⅜	8⅛	
France Fenwick ... Cum. pref.	5	95/3—85/-	5⅜	6¼	87/6	
Furness, Withy ... Ord.	1	60/9—41/6	20*	6⅝	60/-	−5/6
Do. ... Cum. pref.	10	9—7¾	5	5¾	8⅜	+ 1/16
General Steam Nav. Ord.	1	24/9—21/6	10	7½	32/6	+2/9
Do. ... ... Pref.	1	19/4⅜—15/-	5	6½	15/6	
Houlder Line ... Cum. pref.	5	82/6—75/-	5⅜	6⅝	80/-	
Do. ... ... Deb.	Stk.	—	4⅜	4¾	91	
Houlder Bros. ... Cum. pref.	5	—	5⅜	6⅜	4	
Do. ... ... Deb.	Stk.	—	4⅜	5⅜	82	
India Gen. Nav. & Rly. ... Ord.	10	11¾—8⅞	6	5⅜	11½	
Indo-China N. ... Pref. Ord.	5	97/6—87/6	6	6⅞	97/6	
Irrawaddy Flotilla	40	—	12½	5	100	
Khedivial Mail ... ... Ord.	1	40/—24/-	20	12¾	36/6	−2/-
Do. ... ... Pref.	5	76/3—70/-	5⅜	7⅛	77/6	
Do. ... ... Deb.	Stk.	95⅝—93	4⅜	4¾	94½	
King Line ... ... Ord.	1	42/6—31/6	12	5½	45/6	
Lamport & Holt ... Cum. pref.	£1	20/4⅜—18/-	6	6	19/-	
Leyland (F.) ... Cum. pref.	10	8⅜—7½	5	5⅞	8	
Mercantile SS. ... ... Ord.	5	30¼—15	40	8	30½	
Do. ... ... Pref.	1	21/—15/9	5	6¾	21/-	
Moor Line ... ... Ord.	10	35—20	30	6⅜	41	
Nelson Steam Nav. ... Deb.	100	—	5	5⅜	98¾	
New Zealand ... ... Ord.	£10	—	8	2⅜	32½	
Do. ... ... Deb.	Stk.	87⅞—86⅜	4	4⅝	88⅜	
Nitrate Producers SS. ... Ord.	5	25⅜—20	30	6¼	24⅜	
Do. ... Cum. pref.	5	100/—90/-	5	5	5	
Oceanic Steam. Nav. ... Deb.	100	98⅜—84	4⅜	4⅝	94	
Orient.Stm.Nav.Co. Cum. pref.	10	9¼—8⅜	5	5⅜	9⅛	
Do. ... ... Deb.	100	92—88	4⅜	5⅛	88	
P. & O. S. N. ... Cum. pref.	100	93¾—84	5	5⅜	91	
Do. ... ... Def.	100	342—295	18	5⅜	334	−1
Do. ... ... Deb.	Stk.	65⅛—63⅜	3⅜	5¼	64	
Prince Line	1	6⅜—3 1/16	30	5⅛	117/6	
R.M.S.P. ... ... Ord.	100	125—109½	7	5¾	120½	− ½
Do. ... ... Pref.	Stk.	85⅜—80	5	6	83¼	
Do. ... ... Deb.	Stk.	86—79	4⅜	5⅜	79	
Shaw, Savill & Alb. Cum. pref.	5	87/6—80/-	5¼	5½	85/-	
Shell Transport ... ... Ord.	1	6¼—96/3	35	6¼	5⅜	
Do. ... Cum. pref.	10	9¼—9⅛	5	5⅜	9⅛	
Sutherland SS. Co.	£1	75/—50/9	30	5¾	102/6	
Union-Castle SS. Cum. pref.	10	7⅜—7¼	4⅜	6	7⅜	− 1/16
Do. ... ... Deb.	Stk.	90—86	4	4⅜	89	
West Hartlepool ... ... Pref.	10	7¼—7⅜	5⅜	7¼	7½	

INSURANCE.

Alliance	20 (2·4 pd.)	10⅛—9	12/-	7	10 11/16
London Assurance ...	25 (12½ pd.)	60⅛—46¾	22	7	63¾
Merchants' Marine Insurance ...	10 (2½ pd.)	10⅛—6¾	10	6	10 5/16
N. British & Mercantile Ord.	25 (6¼ pd.)	36—29	40/-	6⅜	34½
Phœnix Assurance ...	10 (1 pd.)	7⅜—6	40	7	8 7/16
Royal Exchange Assurance ...	Stk.	241⅜—187	10	4¼	251
Sea Insurance	10 (2 pd.)	27½—24¾	10	6	27
World Marine, Limited ...	5 (2 pd.)	6⅞—55/-	10	8	6⅞

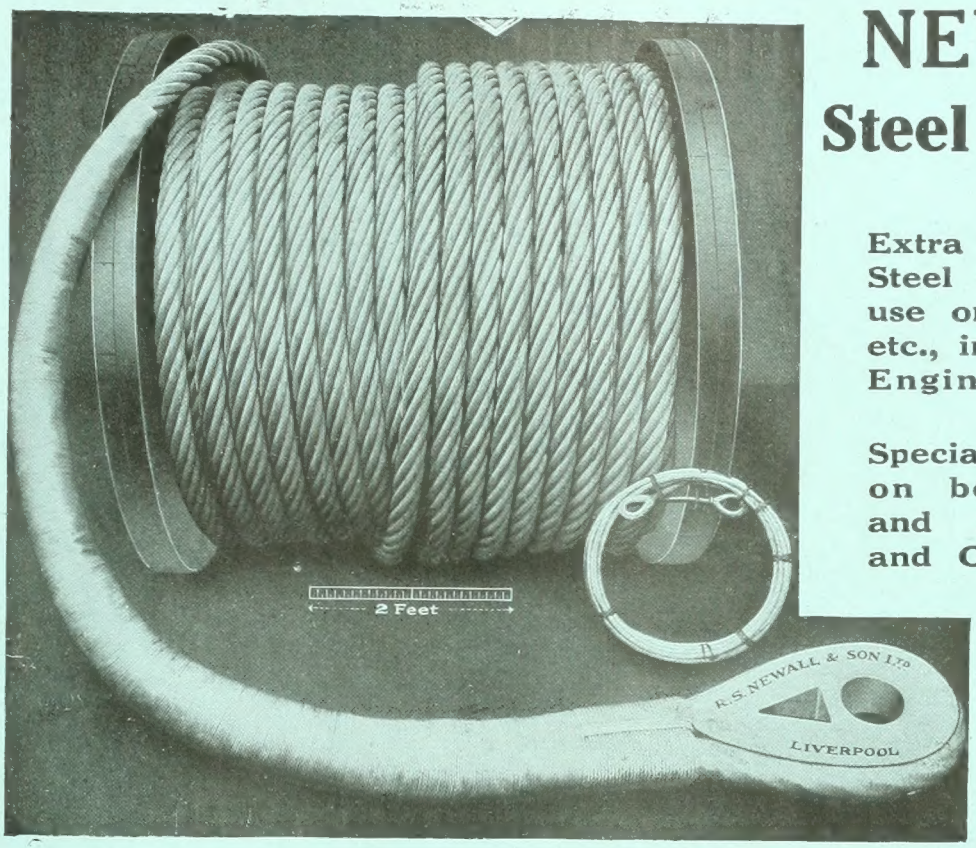
IRON AND STEEL.

Name.	Share and paid.	Extreme quotations, 1917.	Last ann. div. % or per share.	Yield. %	Last Quotation	Rise or Fall.
	£					
Babcock & Wilcox... ... Ord.	1	68/—52/6	15	4⅜	65/-	
Baldwins ... Cum. pref.	1	20/—15/-	5⅜	5⅜	20/-	
Do. ... ... Deb.	Stk.	84—82	4⅜	5⅜	84	
Bayliss, Jones ... Cum. pref.	1	—	5	7½	1 1/16	
Bell Bros. ... ... Cum. pref.	10	10—9⅜	6	6	10	
Do. ... ... Deb.	Stk.	80—73¾	5	7	74	
Bessemer (Henry) ... Ord.	1	34/6—24/6	12⅜	7⅜	32/-	
Bolckow Vaughan ... Ord.	1	30/—22/2	11	7⅛	27/3	— -/3
Do. ... ... Cum. pref.	20	17¼—16¾	5	5⅜	16/9	
Cargo Fleet Iron ... ... Ord.	1	24/9—17/3	3	2⅜	26/-	
Do. ... ... Deb.	100	84—81½	4⅛	5⅜	82	
Consett Iron Co. ... ... Ord.	1	36/3-24/10½	50	10	95/-	
Dominion Iron & Steel	Bds.	85⅜—71¾	5	7	71	
Dorman, Long ... ... Ord.	1	50/—30/9	8†	—	35/-	−3/-
Do. ... ... Deb.	Stk.	—	4	5¼	71	
Ebbw Vale Steel & Iron Ord.	1	30/6—24/6	12⅜	9	29/-	
Guest, Keen & Nettefids Ord.	1	89/—62/6	15*	3⅜	82/6	−2/6
Do. ... ... Cum. pref.	5	5⅜—5	5	4⅜	5 3/32	
Do. ... ... Deb.	Stk.	79¼—73¾	4	5¼	77	
Hadfield's Steel Foundry Ord.	1	107/6—78/6	30	5⅜	117/6	
Ibbotson Bros.	5 (4 pd.)	7—6½	7⅜	4½	6¾	
Jessop (W.) & Sons ... Ord.	5 (4 pd.)	10—8	15*	6⅜	9½	
Lanarkshire Steel Cum. pref.	10	—	5	7⅛	7	
Lysaght (J.) ... Cum. pref.	1	25/—20/-	6	6	20/-	
Do. ... ... 2nd pref.	1	19/9—19/4½	6	6	20/-	
Manganese Bronze ... Ord.	1	—	6	11	11⅛	
Do. ... ... Cum. pref.	1	—	6	8	3⅜	
North-Eastern Steel ... Deb.	Stk.	—	4⅜	—	—	
Palmers Ship & Iron "A" ...	1	13/—9/9	Nil.	Nil.	13/9	
Scott (Walter) ... ... Ord.	1	29/4⅜—21/3	15	10⅜	29/-	
Do. ... ... Pref.	1	19/9—16/-	6	7⅜	19/9	
Sheffield Forge ... ... Ord.	1	—	15	4½	70/-	
Shelton Iron & Steel ... Ord.	1	24/6-16/10½	7½	6	21/7½	
Do ... ... Deb.	100	91⅛—91	5	5⅜	91⅛	
S. Durham Steel & Iron Ord.	1	42/9—29/6	10	4½	45/-	
Do. ... ... Cum. pref.	1	20/9-18/7½	6	6½	20/9	
Do. ... ... Deb.	Stk.	81—80	4⅜	5⅜	80	
Steel Co. of Scotland ... Ord.	10	—	10	6½	15½	
Stewarts & Lloyds Pref. ord.	10	17—16	10	6¼	16	
Do. ... ... Cum. pref.	10	—	6	4⅜	13⅛	
Stone (J.) ... ... Cum. pref.	10	8⅛—7⅞	5	6⅜	7 5/16	
United States Steel ... Ord.	100$	124—109⅜	8	7⅜	96⅛	
Do. ... ... Cum. pref.	100$	—	7	7⅜	114 1/64	
Vickers Ltd. ... ... Ord.	1	44/6—35/3	12⅜	5½	41/6	−1/9
Do. ... ... Pref.	Stk.	84—81	5	6	82	
Do. ... ... Deb.	Stk.	79—74⅜	4	5⅜	76	
Weardale Steel ... Def. ord.	1	32/3—23/-	19½	13¾	29/-	
Do. ... ... Cum. pref.	1	25/3—18/9	6	5¼	24/9	— -/3
Do. ... ... Deb.	Stk.	—	4	6⅜	62	
Workington Iron & Steel Ord.	1	30/3—21/-	10	6⅜	27/6	−1/-

SHIPBUILDING AND MARINE ENGINEERING.

Armstrong, Whitworth Ord.	1	45/—36/-	12½	5¾	42/6	— -/6
Do. ... ... Cum. pref.	5	73/9—67/-	4	5⅜	67/6	
Do. ... ... Deb.	Stk.	78—73	5	6⅜	75⅛	
Beardmore (W.) ... ... Deb.	100	93—89	4⅜	5	90	
Brown (John) ... ... Ord.	1 (15s. pd.)	29-/—22/9	12½	7	28/-	
Do. ... ... Cum. pref.	10	8¼—7⅞	5	5⅜	8⅛	
Cammell Laird ... ... Ord.	5	7⅛—6¾	10	7½	7	
Do. ... ... Cum. pref.	5	85/6—74/6	5	6½	81/6	
Do. ... ... Deb.	100	83⅞—79⅛	4⅜	5⅜	84	
Dunlop (Jas.) ... ... Ord.	1	28/9—16/-	10	9⅜	22/3	
Do. ... ... Cum. pref.	1	18/9—16/6	6	7⅜	17/6	
Fairfield Shipbldg Cum. pref.	10	8⅞—8¼	6	7⅜	8⅜	
Fleming & Ferguson ... Ord.	10	—	10	7	14½	
Gray (Wm.) ... ... Deb.	100	100—95⅜	4⅜	4⅝	97⅜	
Hawthorn (R. & W.) Leslie Ord.	1	—	12⅜	6¼	40/6xd	
Henderson (D. & W.) Cum. pref.	1	—	5	9	9 1/16	
Richardson, Westgarth Ord.	1	10/3—5/-	Nil.	Nil.	10/-	
Do. ... ... Cum. pref.	1	19/9—12/6	Nil.	Nil.	18/3	+ -/6
Do. ... ... Deb.	Stk.	67—62	4⅜	6⅜	66	
Simons (W.) ... Cum. pref.	10	—	5	5	9 1/16	
Swan, Hunter & W. R. ... Ord.	1	51/—33/6	12⅜	5⅛	56/6	
Do. ... ... Cum. pref.	1	17/3—17/-	5	5⅜	17/-	
Do. ... ... Deb.	Stk.	78—77	4¼	5⅜	77	
Thornycroft (John I.) ... Ord.	1	45/—16/-	17⅜	8¼	41/-	
Do. ... ... Cum. pref	1	19/—16/-	6	6⅜	18/6	
Do. ... ... Deb.	100	—	5	5¼	82	
Wallsend Slipway ... Ord.	1	2—1⅜	10	2¾	72/6	
Do. ... ... Cum. pref.	1	1—1	5	5	1	

* Including bonus. † Also 20 % in shares. ‡ Treasury price.



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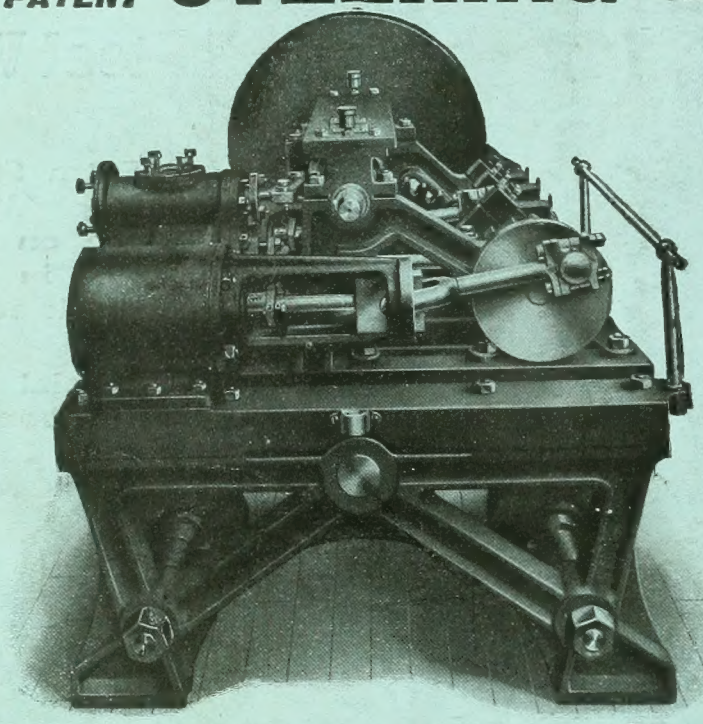

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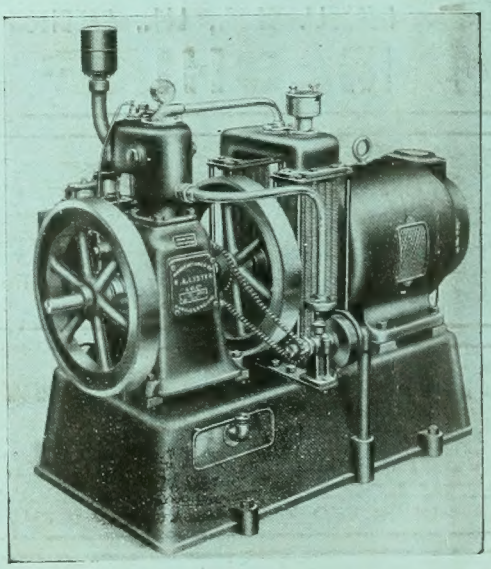

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